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ANNUAL PROGRESS REPORT
1978 RESULTS

PHENOLOGY AND PRODUCTION STUDIES ON SEMI-ARID SHRUB TYPES

SUBMITTED BY WYOMING AGRICULTURAL EXPERIMENT STATION

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PEHNOLOGY AND PRODUCTION STUDIES ON
SEMI-ARID SHRUB TYPES[1]

1978 ANNUAL PROGRESS REPORT

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BY

H.G. Fisser, L.W. Young, N.E. Hargis and K.E. Spaeth[2]

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[1] Published with the approval of the Director, Wyoming Agricultural Experiment Station, as Scientific Report No. 985

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SECTION I

PHENOLOGY STUDY

1978

Introduction

Phenological study of important plant species in terms of productivity and microenvironmental variations will provide information that can be used to increase the efficiency of Bureau decision making with respect to management alternatives and disposition of natural resource areas.

Phenology studies of important shrub and grass species will provide detailed biological information related to specific changes in environmental characteristics such as time, duration, temperature, and movement. Very little detailed phenology and productivity information is available for arid land species of the western United States. Basic scientific knowledge and more precise information related to the Bureau's multiple resource management techniques will be enhanced by this phenology study.

Artemisia tridentata, Artemisia nova, Agropyron smithii, and Agropyron spicatum are the major shrub and grass species in the intermountain region on semi-arid, low elevation grazing ranges of public land. These species are especially important in the semi-arid regions of the western half of Wyoming from the Montana border on the north and the Utah and Colorado borders on the south. Their importance in adjacent states is equally significant. The ecological divergence of these four species is very great. They are found from high elevations to very low elevations and from mesic to xeric situations. Therefore, these four species, in the development of the cooperative research program between the Bureau of Land Management and the University of Wyoming, were selected for intensive studies, to determine interrelationships of phenology, production, environment and utilization. These kinds of data are of major importance to the BLM for development of efficient and sound resource management decisions.

Intensive phenological studies were located on 12 selected exclosure areas. First level evaluation areas are: Demer exclosure, Farson exclosure, Horse Creek exclosure, Shoshoni Ant #7 exclosure, and Sweetwater exclosure. Second level evaluation areas are: Bud Kimball exclosure, Cedar Mountain exclosure, Cumberland #3 exclosure, Mesa Antelope exclosure, Owl Draw exclosure, Red Wash #2 exclosure and Upper Government Draw exclosure.

Phenophase descriptions and stages with numerical scales were set up for four specific plant species: *Agropyron smithii*, *A. spicatum*, *Artemisia nova*, and *A. tridentata*, plus one phenological inventory for all plant species. Seasonal development (March-December) was recorded for 100 plant species in 12 exclosure areas. Individual plants of the four principal species in each of the 12 selected exclosure areas were permanently located for repeated observation.

Plans for 1979 will include continuation of production and phenology data collection. The numerical description of plant growth characters in the phenology study will be revised for separate vegetative and reproductive phases. The independent variables of productivity, environmental and soil factors will be analyzed by statistical means. The productivity of the four major species will be examined at various phenological development stages throughout the growing season.

Objectives

The objectives of the study are to determine:

(1) the relationship of phenodynamics with vegetation production and environmental data;

(2) relationships of phenodynamics and environmental characteristics to grazing and management procedures.

Methods and Procedures

Twenty individual plants of each of the four principal species were permanently located along a 100 foot line in 12 exclosures. Every 5 ft. on the line, directions along and from the line for the closest plant were recorded.

Phenological measurements of Artemisia nova and A. tridentata included plant size, age, vegetative stages of growth with twig length, and reproductive stages of flowering and seed ripening with seed stalk length. Phenological measurements of Agropyron smithii and A. spicatum included plant size, age, vegetative stages of growth with leaf width and height; reproductive stages with spike height, number of spikelets per seed head and seed head development.

Phenological stages and numerical scores for shrubs and forbs are:

1. = initial start of growth of the plant;
2. = early vegetative growth -- the new leaves are developing and elongating;
3. = immature vegetative growth -- the new twigs are elongating;

4. = full vegetative growth -- the leaves and twigs are fully developed;

5. = floral bud stage -- the first buds begin development to the initiation of bloom;

6. = early bloom -- includes the initiation of bloom to 10% bloom;

7. = mid-bloom -- includes 10% to 75% of bloom;

8. = full-bloom -- includes 75% bloom to 100% bloom;

9. = late bloom -- the flowers are drying and seeds are beginning to form;

10. = milk stage -- the seeds are soft and immature (not well-formed);

11. = dough stage -- the seed is well-formed but still soft;

12. = ripe seed -- the seed is mature and hard;

13. = past ripe -- the seed is ripe but not shattered, and reproductive parts of the plant (seed, stalk, etc,) are mature, and are beginning to weather;

14. = mature vegetative -- the vegetative parts are beginning to brown to complete browning;

15. = mature reproductive -- the reproductive parts are curing (stem, leaf and seeds are shattering);

16. = fall regreening -- and/or leaf shed;

17. = winter dormancy.

The plant age classes of shrubs are classified as:

1. = seedling;

2. = young and small;

3. = intermediate age and size;

4. = mature age and size;

5. = old and decadent.

The phenological stages and numerical scores for grasses are:

1. = first leaf stage -- from the appearance of first leaf to appearance of second leaf;

2. = second leaf stage -- from the appearance of second leaf to appearance of third leaf;

3. = third leaf stage -- from the appearance of the third leaf to appearance of the fourth leaf;

4. = fourth leaf development -- from the appearance of the fourth leaf to full leaf development;

5. = boot stage -- the seed stalk is elongating and the noticeable swelling of the seed head in boot;

6. = seed head emergence -- from the beginning of emergence of the seed head to the start of anthesis;

7. = early anthesis -- from initiation of anthesis to 10% of florets in bloom;

8. = mid-anthesis -- from 10% florets in bloom to 75% of florets in bloom;

9. = full anthesis -- 75% and more of the florets in bloom;

10. = the seed is soft and immature (not well-formed);

11. = dough stage -- the seed is well-formed but still soft;

12. = ripe seed -- the seed is well-formed and hard;

13. = past ripe -- the reproductive parts begin to weather;

14. = vegetative parts browning;

15. = reproductive parts curing -- stems, leaves and seeds cast;

16. = fall regreening -- with adequate fall moisture and temperature there is fall regrowth;

17. = winter dormancy.

The maturity of Agropyron spicatum clumps are classified as: (a) seedling, (b) young, (c) intermediate, (d) mature, and (e) old. Each maturity classification can then be designated as: (a) sparse, (b) intermediate, (c) dense and (d) decadent.

1978 Results

An alphabetical listing of each study exclosure, the county where located and the principal phenology species is shown in Table I. Table II is an alphabetical listing of 130 species found in the 12 phenology study exclosures. A phenological inventory of all species by date for each exclosure is given in Table III. Table IV is the intensive phenological survey of the prime species for each exclosure. Table V is the data for the three major phenological growth stages for all species. Figure 1 shows the phenological development averages for 1978 for the four principal species in all of the study areas.

The phenology developmental stages for 1978 were compared with the earliest and latest dates for the different stages from 1973 to 1977 (Figure 2). In general, the 1978 observations by date were near the mean average of the comparison years, with the exception of Owl Draw. At Owl Draw the reproduction stages of full bloom and seed formation for all species occurred at later dates. Comparing this to 1977, which was very dry, reproduction and plant drying occurred much earlier. In 1978, there was ample moisture in the late fall, resulting in a longer period for reproduction. The grass species remained greener for a longer period of time before leaf-browning became apparent.

TABLE I. Alphabetical listing of study areas, the county where each occurs, and the prime species.

Exclosure Name	County	Prime Species
Bud Kimball	Washakie	Agropyron smithii Artemisia tridentata
Cedar Mountain	Sweetwater	Agropyron spicatum Artemisia tridentata
Cumberland #3	Lincoln	Agropyron smithii Agropyron spicatum Artemisia tridentata
Demer	Washakie	Agropyron smithii Agropyron spicatum Artemisia tridentata
Farson	Sweetwater	Agropyron smithii Artemisia tridentata
Horse Creek	Big Horn	Agropyron smithii Agropyron spicatum Artemisia nova Artemisia tridentata
Mesa Antelope	Sublette	Agropyron smithii Artemisia tridentata
Owl Draw	Natrona	Agropyron smithii Agropyron spicatum Artemisia nova Artemisia tridentata
Red Wash #2	Sweetwater	Agropyron smithii Agropyron spicatum Artemisia tridentata
Shoshone Ant #7	Fremont	Agropyron smithii Artemisia tridentata
Sweetwater	Fremont	Agropyron smithii Artemisia nova Artemisia tridentata
Upper Gov't. Draw	Fremont	Agropyron smithii Artemisia tridentata

TABLE II. LIST OF PLANT NAMES WHICH OCCURRED IN PHENOLOGY STUDY AREAS.

Code	Genus-Species	Common Name	Life Form	Longevity
ACLA	Achillea lanulosa	Western yarrow	Forb	Perennial
AGGL	Agroseris glauca	Pale agoseris	Forb	Perennial
AGCR	Agropyron cristatum	Crested wheatgrass	Grass	Perennial
AGSM	Agropyron smithii	Western wheatgrass	Grass	Perennial
AGSP	Agropyron spicatum	Bluebunch wheatgrass	Grass	Perennial
ALTE	Allium textile	Prairie onion	Forb	Perennial
AMAL	Amelanchier alnifolia	Saskatoon serviceberry	Shrub	Perennial
ANDI	Antennaria dimorpha	Low pussytoe	Forb	Perennial
ANRO	Antennaria rosea	Rose pussytoes	Mat-form	Perennial
ANT	Antennaria spp.	Pussytoe	Mat-form	Perennial
ARHO[2]	Arabis holboellii	Holboell rockcress	Forb	Perennial
ARLI	Arabis lignifera	Woody rockcress	Forb	Annual
ARHO	Arenaria hookeri	Hooker sandwort	Mat-form	Perennial
ARFE	Aristida fendleriana	Fendler three-awn	Grass	Perennial
ARFR	Artemisia frigida	Fringed sagewort	Half-shrub	Perennial
ARNO	Artemisia nova	Black sagebrush	Shrub	Perennial
ARSP	Artemisia spinescens	Bud sagewort	Half-shrub	Perennial
ARTR	Artemisia tridentata	Big sagebrush	Shrub	Perennial
ASCI	Astragalus cibarius	Silky milkvetch	Forb	Perennial
ASDI	Astragalus diversifolius	Meadow milkvetch	Forb	Perennial
ASKE	Astragalus kentrophyta	Nuttall kentrophyta milkvetch	Forb	Perennial
ASMI[2]	Astragalus miser	Timber milkvetch	Forb	Perennial
ASMI	Astragalus missouriensis	Missouri milkvetch	Forb	Perennial
ASPU	Astragalus purshii	Pursh loco	Forb	Perennial
ASSP	Astragalus spatulatus	Tufted milkvetch	Forb	Perennial
AST	Astragalus spp.	Milkvetch	Forb	Perennial
ATCO	Atriplex confertifolia	Shadscale saltbush	Shrub	Perennial
ATGA	Atriplex gardneri	Gardner saltbush	Half-shrub	Perennial
BASA	Balsamorhiza sagittata	Arrowleaf balsamroot	Forb	Perennial
BOGR	Bouteloua gracilis	Blue grama	Grass	Perennial
BRJA	Bromus japonicus	Japanese chess	Grass	Annual
BRTE	Bromus tectorum	Cheatgrass	Grass	Annual
CANU	Calochortus nuttallii	Segc mariposalily	Forb	Perennial
CAMI	Camelina microcarpa	Littlepod falseflax	Forb	Annual
CAEL	Carex eleocharis	Needleleaf sedge	Sedge	Perennial
CAFI	Carex filifolia	Threadleaf sedge	Sedge	Perennial
CAAN	Castilleja angustifolia	Narrowleaf Indianpaintbrush	Forb	Perennial
CACH	Castilleja chromosa	Desert Indianpaintbrush	Forb	Perennial
CAS	Castilleja spp.	Indianpaintbrush	Forb	Perennial
CELA	Ceratoides lanata	Winterfat	Half-shrub	Perennial
CHDO	Chaenactis douglasii	Douglas dustymaiden	Forb	Perennial
CHE	Chenopodium spp.	Goosefoot	Forb	Annual
CHDE	Chenopodium dessicatum	Desert goosefoot	Forb	Annual
CHNA	Chrysothamnus nauseosus	Rubber rabbitbrush	Shrub	Perennial
CHVI	Chrysothamnus viscidiflorus	Douglas rabbitbrush	Shrub	Perennial
CIR	Cirsium spp.	Thistle	Forb	Perennial
COPA	Comandra pallida	Pale bastardtoadflax	Forb	Perennial
CORA	Cordylanthus ramosus	Branched birdbeak	Forb	Annual
CRAC	Crepis acuminata	Tapertip hawksbeard	Forb	Perennial
CRMO	Crepis modocensis	Yellowstone hawksbeard	Forb	Perennial
CRBR	Cryptantha bradburiana	Miners candle	Forb	Perennial

TABLE II. Continued

Code	Genus-Species	Common Name	Life Form	Longevity
CRFL	Cryptantha flavoculata	Roughseed cryptantha	Forb	Perennial
CYMO	Cymopterus montanus	Mountain springparsley	Forb	Perennial
DEGE	Delphinium geyeri	Plains larkspur	Forb	Perennial
DEPI	Descurainia pinnata	Pinnate tansymustard	Forb	Annual
ERCA	Erigeron canadensis	Horseweed fleabane	Forb	Annual
EROC	Erigeron ochroleucus	Creamy fleabane	Forb	Perennial
ERPU	Erigeron pumilus	Low fleabane	Forb	Perennial
ERCE	Eriogonum cernuum	Nodding wildbuckwheat	Forb	Annual
ERMI	Eriogonum microthecum	Slenderbrush wildbuckwheat	Forb	Perennial
EROV	Eriogonum ovalifolium	Cushion wildbuckwheat	Mat-form	Perennial
ERSU	Eriogonum subalpinum	Subalpine wildbuckwheat	Mat-form	Perennial
ERAS	Erysimum asperum	Plains wallflower	Forb	Perennial
GIAG	Gilia aggregata	Skyrocket gilia	Forb	Perennial
GICO	Gilia congesta	Ballhead gilia	Forb	Perennial
GRSP	Grayia spinosa	Spiny hopsage	Shrub	Perennial
GRSQ	Grindelia squarrosa	Curlycup gumweed	Forb	Biennial
HAAC	Haplopappus acaulis	Stemless goldenweed	Forb	Perennial
JUOS	Juniperus osteosperma	Utah juniper	Tree	Perennial
JUSC	Juniperus scopulorum	Rockymountain juniper	Shrub	Perennial
KOAM	Kochia americana	Greenmolly summercypress	Shrub	Perennial
KOCR	Koeleria cristata	Prairie junegrass	Grass	Perennial
LAIN	Lactuca integrata	Lettuce	Forb	Perennial
LARE	Lappula redowskii	Bluebur stickseed	Forb	Annual
LEDE	Lepidium densiflorum	Prairie pepperweed	Forb	Annual
LEPE	Lepidium perfoliatum	Clasping pepperweed	Forb	Annual
LEPU	Leptodactylon pungens	Granite gilia	Half-shrub	Perennial
LERE	Lewisia rediviva	Bitterroot	Forb	Perennial
LILE	Linum lewisii	Lewis flax	Forb	Perennial
LOOR	Lomatium orientale	Eastern lomatium	Forb	Perennial
LOSI	Lomatium simplex	Narrowleaf lomatium	Forb	Perennial
LUPU	Lupinus pusillus	Rusty lupine	Forb	Annual
MACA	Machaeranthera canescens	Hoary aster	Forb	Perennial
MAGR	Macheranthera grindeloides	Pinnate woody-aster	Half-shrub	Perennial
MATA	Machaeranthera tanacetifolia	Tansyleaf aster	Forb	Annual
MELO	Mertensia longiflora	Small bluebells	Forb	Perennial
OPPO	Opuntia polyacantha	Plains pricklypear	Forb	Perennial
ORFA	Orobanche fasciculata	Tufted broomrape	Sapprophyte	Perennial
ORHY	Oryzopsis hymenoides	Indian ricegrass	Grass	Perennial
PECL	Penstemon cleburnei	Cleyburn penstemon	Forb	Perennial
PEFR	Penstemon fremonti	Fremont penstemon	Forb	Perennial
PEN	Penstemon spp.	Penstemon	Forb	Perennial
PHHO	Phlox hoodii	Hood's phlox	Mat-form	Perennial
PHLO	Phlox longifolia	Long-leaf phlox	Forb	Perennial
PLPA	Plantago patagonica	Wooly Indianwheat	Forb	Annual
PLSP	Plantago spinescens	Spiny Indianwheat	Forb	Annual
POFE	Poa fendleriana	Mutton bluegrass	Grass	Perennial
POSE	Poa secunda	Sandberg bluegrass	Grass	Perennial
PSTE	Psoralea tenuiflora	Slimflower scurfpea	Forb	Perennial
SAKA	Salsola kali	Russian thistle	Forb	Annual
SAVE	Sarcobatus vermiculatus	Greasewood	Shrub	Perennial
SELA	Sedum lanceolatum	Lanceleaf stonecrop	Forb	Perennial

TABLE II. Continued

Code	Genus-Species	Common Name	Life Form	Longevity
SEDE	Selaginella densa	Spikemoss selaginella	Clubmoss	Perennial
SECA	Senecio canus	Woolly groundsel	Forb	Perennial
SEIN	Senecio integerrimus	Lambstongue groundsel	Forb	Perennial
SIAL	Sisymbrium altissimum	Tumbling hedgemustard	Forb	Annual
SILI	Sisymbrium linifolium	Narrowleaf hedgemustard	Forb	Annual
SIHY	Sitanion hystrix	Squirreltail bottlebrush	Grass	Perennial
SPCO	Sphaeralcea coccinea	Scarlet globemallow	Forb	Perennial
STCO	Stipa comata	Needleandthread	Grass	Perennial
STVI	Stipa viridula	Green needlegrass	Grass	Perennial
SYOC	Symphoricarpos occidentalis	Western snowberry	Shrub	Perennial
TAOF	Taraxacum officinale	Common dandelion	Forb	Perennial
TECA	Tetradymia canescens	Gray horsebrush	Shrub	Perennial
TENU	Tetradymia nuttallii	Nuttall horsebrush	Shrub	Perennial
TOIN	Townsendia incana	Hoary townsendia	Forb	Perennial
TRDU	Tragopogon dubius	Yellow salsify	Forb	Biennial
TRGY	Trifolium gymnocarpon	Hollyleaf clover	Forb	Perennial
TRI	Trifolium spp.	Clover	Forb	
UMB	Umbelliferae fam.	Carrot fam.		
VIAM	Vicia americana	American vetch	Forb	Perennial
VINU	Viola nuttallii	Nuttall violet	Forb	Perennial
VIVA	Viola vallicola	Nuttall violet	Forb	Perennial
VIO	Viola spp.	Violet	Forb	Perennial
VUOC	Vulpia octoflora	Common sixweeksgrass	Grass	Annual
WYAM	Wyethia amplexicaulis	Mulesear wyethia	Forb	Perennial
XASA	Xanthocephalum sarothrae	Broom snakeweed	Half-shrub	Perennial
YUGL	Yucca glauca	Small soapweed	Forb	Perennial
ZYPA	Zygadenus paniculatus	Foothill death camus	Forb	Perennial
ZYVE	Zygadenus venenosus	Death camus	Forb	Perennial
ASSP	Astragalus spatulatus	Spoonleaf milkvetch	Mat-form	Perennial
CHDO	Chaenactis douglasii	Douglas dustymaiden	Forb	Perennial
CHLE[2]	Chenopodium leptophyllum	Narrowleaf goosefoot	Forb	Annual
ERCA	Eriogonum caespitosum	Mat wildbuckwheat	Mat-form	Perennial
HAGL	Halogeton glomeratus	Halogeton	Forb	Annual
LASE	Lactuca serriola	Prickly lettuce	Forb	Perennial
RHTR	Rhus trilobata	Skunkbush sumac	Shrub	Perennial
SADE				

7½ 7:30

TABLE III. All species phenological survey by date for each exclosure.

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Bud Kimball Exclosure	12
Cedar Mountain "	14
Cumberland #3 "	16
Demer "	18
Farson "	20
Horse Creek "	22
Mesa Antelope "	26
Owl Draw "	28
Red Wash #2 "	32
Shoshoni Ant #7 "	35
Sweetwater "	36
Upper Gov't Draw "	38

PHENOLOGICAL INVENTORY Study Area Bud Kimball 1978 Type-site ARTR-AGSM

SPECIES IDENTIFICATION		VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
		25 May		8 June		26 June		19 July		10 Aug		2 Sept		1 Nov									
1.	AGSM	3.3		4.2		4.4	6.4	4.5	9.3	4.9	10.3	14.7	13.1	15.1									
2.	AGSP	3.2		3.6		3.7	5.3	4.4	10.3	14.1	13.2	14.2	13.3	14.5	13.9								
3.	ALTE			3.4				14.4	15.3	14.7	15.6	14.7	15.7	14.8	15.8								
4.	ARHO[2]	3.2	6.2			14.3	12.4	14.5	15.5	14.5	15.6	14.7	15.7	14.8	15.8								
5.	ARTR	2.4		3.1		3.4		3.6	5.1	4.4	5.4	14.2	6.0	14.4	13.7								
6.	BOGR					3.3		4.2	8.2	4.7	10.4	14.3	13.4	14.5	15.2								
7.	BRJA			4.4	7.2	14.1	11.3	14.3	15.2	14.4	15.4	14.5	15.5	14.7	15.7								
8.	BRTE	4.1	6.2	4.4	6.6	14.3	11.4	14.6	15.3	14.7	15.7	14.7	15.7	16.3									
9.	CANU									14.5	15.6	14.7	15.7	14.8	15.8								
10.	CACH	3.4	7.4	3.7	7.7	4.7	11.4	14.3	15.4	14.6	15.7	14.7	15.8	14.8	15.8								
11.	CHDE							4.2	12.2	4.7	12.7	4.8	13.2	14.8	15.4								
12.	CRMO	3.2	6.4	3.3	7.2	4.3	11.7	14.6	13.7	14.7	15.3	14.8	15.7	14.8	15.8								
13.	DEPI	3.3	6.4	3.2	6.7	14.1	11.5	14.6	15.5	14.7	15.7	14.8	15.8	14.8	15.9								
14.	ERPU	2.7	5.0	3.2	7.2	4.5	8.2	4.8	13.2	4.9	13.4	14.2	13.7	16.2									
15.	LARE	2.4	5.6	3.3	6.8	4.8	11.4	14.7	15.7	14.9	15.9	14.9	15.9	14.9	15.9								
16.	LEDE	2.2		3.2		14.1	11.4	14.2	13.4	14.6	15.8	14.7	15.8	14.8	15.8								
17.	LERE	2.6	5.2	3.2	6.0	4.6	11.3	14.7	15.3	14.9	15.9	14.9	15.9	14.9	15.9								
18.	LOOR	3.1	5.3	4.4	11.2	14.3	15.2	14.7	15.3	14.7	15.8	14.9	15.9	14.9	15.9								
19.	OPPO	1.4		2.2	5.1	3.2	6.4	4.1	9.4	4.2		14.2		14.4									
20.	PHHO	2.5	6.0	3.5		4.4		14.1		14.2		14.7		14.8									
21.	PLPA					3.6	7.4	14.3	13.7	14.4	15.2	14.5	15.5	14.8	15.8								
22.	POSE	3.4		3.5		14.1	9.4	14.4	15.2	14.6	15.6	14.7	15.7	16.3									

PHENOLOGICAL INVENTORY Study Area Bud Kimball 1978 Type-site ARTR-AGSM

SPECIES IDENTIFICATION	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
	25 May		8 June		26 June		19 July		10 Aug		2 Sept		1 Nov									
1. SIHY			4.2	5.7	4.3	6.3	4.7	12.4	4.9	13.2	14.4	15.1	16.2									
2. STVI	3.2		3.4		3.5	6.2	4.6	12.7	4.9	13.5	14.0	15.1	16.2									
3. SPCO	2.5																					
4. STCO					4.6	11.4	4.9	13.5	14.0	15.1	14.0	15.2	16.2									
5. TRDU	3.2	5.1	3.4	5.6	4.3	6.8			16.2	13.4	16.4	6.3										
6. VIAM	3.3	6.0	3.5	7.3	4.2	11.3	4.6	13.2	4.8	13.7	14.7	15.7	14.8	15.8								
7. VINU	3.1	6.3	3.3																			
8. VUOC	4.2		4.2	6.4	14.1	10.3	14.6	15.4	14.7	15.8	14.7	15.8	14.8	15.9								
9.																						
10.																						
11.																						
12.																						
13.																						
14.																						
15.																						
16.																						
17.																						
18.																						
19.																						
20.																						
21.																						
22.																						

PHENOLOGICAL INVENTORY Study Area Cedar Mountain 1978 Type-site ARTR-AGSP

SPECIES IDENTIFICATION	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
	29 Apr		22 May		6 June		26 June		17 July		8 Aug		30 Aug									
1. AGCR			3.1		4.3		4.5	6.5	4.7	10.3	4.9	10.7	14.3	15.1								
2. AGSP	2.3		3.1		4.2		4.4	6.2	4.8	11.2	14.1	12.9	14.2	13.3								
3. ARHO^2											14.2	15.3	14.5	15.6								
4. ARSP	2.4		3.3	5.5	3.4	6.5	3.5	5.3	14.2	12.3	14.6	15.3	14.7	15.4								
5. ARTR	1.5		2.5		2.8		3.2	5.1	3.6	5.2	14.0	5.5	14.8	5.8								
6. ASPU					3.1																	
7. ATCO			3.3		3.4		3.5	10.7	3.8	12.0	3.9		4.2									
8. ATNU			2.4	5.0	3.4	7.2	3.5	11.2	4.4	12.6	4.7	12.8	4.7									
9. CHVI			2.4		3.4		3.5	5.1	3.7	5.6	4.2	7.8	4.8	8.2								
10. CORA							4.2	9.2	4.8	11.4	14.0		14.3	15.2								
11. CYMO			2.4	5.4	3.4	11.5																
12. EROV					3.2	6.2	3.4	7.0	3.8	10.1												
13. EULA-CELA											4.3	10.4	4.4	11.4								
14. HAAC							3.4		4.5		14.1		14.4									
15. KOAM			3.0		3.3		3.6	5.8	3.7	11.3	3.8		4.2									
16. OPPO			1.2		2.2		2.4				3.6		4.3									
17. ORHY			3.4		3.4	5.3	4.2	5.5	4.7	15.0	14.4	15.2	14.5	15.3								
18. PEFR			3.4																			
19. PHHO			3.0		3.2		3.4		14.2		14.6		14.7									
20. PHLO			3.3	6.0	3.4	6.2	3.4	11.2	4.9													
21. POSE	2.1		2.8		4.2	6.2	4.7	7.3	14.3	15.2	14.5	15.5	14.6	15.6								
22. SAVE							3.4		3.7		4.2	eaten	14.5	eaten								

PHENOLOGICAL INVENTORY Study Area Cedar Mountain 1978 Type-site ARTR-AGSP

SPECIES IDENTIFICATION	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
	29 Apr		22 May		6 June		26 June		17 July		8 Aug		30 Aug									
1. SIAL			3.3	5.7	3.3	6.2	4.4	12.3	14.7	15.6	14.4	15.5	14.7	15.7								
2. SIHY			3.2	5.1	3.3	5.5	4.2	6.2	4.4	13.6	14.5	15.3	14.6	15.4								
3. SILI			3.2	5.1	4.0	6.4	4.2	7.1	4.8	12.3	14.5	15.5	14.6	15.6								
4. SPCO			2.3		3.2		3.4	6.7														
5. TENU			2.4	5.0	3.3	5.4	3.5	5.8	3.7	11.3	4.5	12.8	14.2	15.3								
6.																						
7.																						
8.																						
9.																						
10.																						
11.																						
12.																						
13.																						
14.																						
15.																						
16.																						
17.																						
18.																						
19.																						
20.																						
21.																						
22.																						

PHENOLOGICAL INVENTORY Study Area Cumberland #3 1978 Type-site AGSM-AGSP-ARTR

SPECIES IDENTIFICATION		VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
		23	May	6	June	26	June	17	July	8	Aug	30	Aug	4	Nov								
1.	AGGL	2.3	6.3	3.2	7.0			14.1	12.2														
2.	AGSM	3.8		4.0		4.4	6.5	4.5	11.2	14.1	13.1	14.4	13.2	16.5									
3.	AGSP	3.2		3.4	5.4	4.1	9.2	4.5	11.4	14.3	13.5	14.5	13.6	16.5									
4.	AMAL	2.3		3.2	6.2	3.5	9.0	4.3	10.5	4.7		14.4		14.8									
5.	ANDI	2.2	5.0	3.0				4.8	12.5					16.2									
6.	ARHO^2	3.4	5.1	4.3	9.0			14.5	15.5	14.7	15.7	14.7	15.8	17.0									
7.	ARTR	2.2		2.5		2.8	5.0	3.4	5.1	14.1	5.7	14.2	6.0	14.5	13.6								
8.	ASCI					3.8		4.2		14.4													
9.	ASDI									4.5		14.4		17.0									
10.	ASPU	2.4	6.0	3.3	9.0			14.2	15.7														
11.	CANU							4.2	7.3														
12.	CAS	3.0		3.2	5.2	3.6	9.0	4.6	11.4	14.6	15.2	14.7	15.6	17.0									
13.	CHVI	3.0		3.5		3.6		3.8	6.4	4.1	8.4	4.7	9.3	14.4	15.2								
14.	COPA			3.2	6.5			4.3	12.2	4.4													
15.	CORA			2.7		3.3		3.4	6.3	4.2	9.2	14.3	13.3	14.8									
16.	ERMI	3.0		3.3		3.6		3.7	6.2	4.1	7.3	4.7	7.7	14.4	13.8								
17.	LARE	3.3	5.0	4.2	11.8	4.9	13.5	14.9	15.8	14.9	15.9	14.9	15.9	17.0									
18.	LEPE	2.4		3.5		4.0				14.6	15.5	14.7	15.7	17.0									
19.	LOSI	2.4	5.3	3.2	7.3																		
20.	MACA									3.7	8.5												
21.	OPPO	1.3		2.3		2.4		3.4	10.2	4.2		4.6											
22.	ORHY	3.6						4.9	12.6	14.2	13.6	14.4	13.6										

PHENOLOGICAL INVENTORY Study Area Cumberland #3 1978 Type-site AGSM-AGSP-ARTR

SPECIES IDENTIFICATION		VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
		23 May		6 June		26 June		17 July		8 Aug		30 Aug		4 Nov									
1.	PHHO	2.4	6.2	3.6	11.3	4.9	13.0	14.5	15.5	14.6	15.7	14.7	15.7	14.7									
2.	PHLO	2.5	6.1	3.4	7.2	3.7	13.0	14.2	15.3	14.4	15.5	14.6	15.6	16.2									
3.	POFE	3.3	6.3	3.5	5.7	3.5	10.2	4.6	12.2	14.3	15.2	14.4 16.3	15.4	16.3									
4.	POSE	3.4	6.2	3.4	5.7	4.4	10.2	14.2	15.1	14.5	15.5	14.4 16.3	15.6	16.3									
5.	SENECIO			3.4	7.2			14.2	12.3	14.7	15.8	14.9	15.9	17.0									
6.	SIAL			3.4	7.2	4.9	10.3	14.2	15.1	14.6	15.7	14.8	15.9	17.0									
7.	SIHY	3.3				3.3	10.3	14.0	12.8	14.6	15.5	14.7	15.6										
8.	SILI	3.2	5.1	3.4	7.0			14.2	15.0	14.5	15.6	14.6	15.7	17.0									
9.	STCO			3.4	5.7			4.9	13.0	4.9	13.4	14.1	15.2	16.2									
10.	SYOC	3.1		3.3				4.2	11.2	4.8	13.1	14.2		17.0									
11.	TECA	3.1		3.4		3.4	5.2	3.6	6.4	4.3	8.1	14.1	13.5	14.8									
12.	TRDU	3.0		3.2		3.5	5.5	4.2	7.4														
13.	TRI	2.4	6.7	3.2				4.7		14.2													
14.	UMB	3.0	6.2	3.4	7.4	3.7	12.0			14.8	15.7	14.8	15.8	17.0									
15.	VIOLA	2.3		3.2																			
16.	WYAM	2.4		3.2		3.9		14.2		14.7													
17.	ZYPA	3.3		3.4	10.8	3.5	14.1			14.7	15.7	14.8	15.8	18.0									
18.																							
19.																							
20.																							
21.																							
22.																							

PHENOLOGICAL INVENTORY Study Area Demer 1978 Type-site ARTR-AGSM-AGSP

SPECIES IDENTIFICATION	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
	25 May		8 June		28 June		20 July		9 Aug		2 Sept		1 Nov									
1. AGSM	3.5		4.3		4.5		4.5	10.4	4.7		14.1		16.2									
2. AGSP	3.6		4.3	6.1	4.4	6.7	4.6	15.2	14.1	13.3	14.0	13.6	16.3	15.8								
3. ALTE	3.4	7.3	3.4	11.0	14.1	12.4	14.4	15.4														
4. ARTR	1.8		2.5		3.3	5.0	3.5	5.2	4.4	5.5	14.2	5.9	14.5	13.5								
5. AST					3.7	11.4	4.5	12.4	16.2	13.2	14.8	15.8	14.8	15.8								
6. BOGR	3.3		4.2		4.3	7.4	4.8	13.2	4.9	13.3	14.2	13.8	14.7	15.4								
7. BRTE	4.1	5.4	4.2	6.4	14.3	12.3	14.4	15.4	14.6	15.6	14.7	15.7	14.8	15.8								
8. CAS			3.3	7.1			14.8	15.6	14.9	15.6	14.9	15.8	14.9	15.9								
9. CHLE									4.6	12.2	14.2	13.4	14.4	13.7								
10. CHDE							4.4	12.6	4.8	13.4	14.2	13.5	14.4	13.7								
11. CRFL									14.7	15.7	14.8	15.8	14.8	15.8								
12. DEGE	3.2	5.8	3.4	6.1	4.3	11.2	14.3	13.7	14.8	15.7	14.9	15.8	14.9	15.8								
13. DEPI	3.4	6.2	3.4	6.4	14.1	11.1	14.5	15.2	14.7	15.4	14.8	15.7	14.8	15.8								
14. GIPU							3.8	7.3	4.4	10.4	14.2	13.8	14.7	15.8								
15. LARE	3.2	6.2	3.3	6.4	4.4	12.2	14.0	11.2	14.3	15.7	14.8	15.8	14.8	15.8								
16. LEDE	2.5		3.3	7.1	14.1	11.3	14.4	15.4	16.3	15.6	16.4	11.2										
17. OPPO	2.3	5.0	2.6	5.1	2.7	7.4	3.3	9.2	4.9		14.2		14.5									
18. ORHY	3.2		3.0		3.4		3.7	12.8	4.7	13.2	14.1	13.3	16.1	13.7								
19. PLSP	2.5		2.8	5.1	3.4	7.2	14.3	13.3	14.4	13.7	14.5	15.2	14.7	15.7								
20. POSE	3.3	6.3	4.3	7.1	14.2		14.5	15.6	14.7	15.8	14.7	15.8	16.3	15.8								
21. SIAL	3.2	6.2	3.5	7.0	4.1	9.2	4.4	10.4	14.4		16.3											
22. SIHY	4.3		4.4	5.2	4.4	6.4	4.7	11.0	4.9	13.3	14.3	13.3	16.3									

PHENOLOGICAL INVENTORY Study Area Demer 1978 Type-site ARTR-AGSM-AGSP

SPECIES IDENTIFICATION	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
	25 May		8 June		28 June		20 July		9 Aug		2 Sept		1 Nov									
1. SPCO	3.2	5.4	3.1		3.5				4.7													
2. STCO	3.1		3.5		4.3		4.8	13.8														
3. TRDU									4.7	13.4												
4. VUOC	3.1		3.2	6.0	14.1	12.2	14.4	15.4	14.6	15.6	14.7	15.7	14.8	15.8								
5.																						
6.																						
7.																						
8.																						
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PHENOLOGICAL INVENTORY Study Area Farson 1978 Type-site ARTR-AGSM

SPECIES IDENTIFICATION		VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
		22 May		7 June		27 June		17 July		16 Aug		1 Sept		3 Nov									
1.	AGSM	3.3		3.8		4.3	6.3	4.4	9.1	14.2	12.8	14.2	13.4	14.8	15.4								
2.	ALTE	3.3	5.2	4.0	9.5	14.3	11.4	14.3	13.2	14.4	15.5												
3.	ARHO	2.4	5.0	3.0	6.3	3.4	8.2	14.3	11.3	14.6	13.2	14.7	15.4	14.8	15.8								
4.	ARHO^2	3.4	6.2	4.5	9.0	14.0	11.3	14.5	15.4	14.7	15.6	14.8	15.7	14.9	15.9								
5.	ARTR	2.1		2.7		3.0	5.0	3.3	5.2	4.4	5.4	14.2	6.3	14.5	13.6								
6.	ASPU	3.3	5.1	3.3	7.3	4.2	12.6	14.2	13.7	14.4	15.4	14.5	15.4	14.8	15.8								
7.	ATCO	3.2		3.3		3.6	10.2	4.1	10.7	4.4	11.4	14.2	12.2	14.7	15.2								
8.	CAEL	3.2	7.1	3.2	8.4	3.4	9.3	4.5	11.2	14.1	12.4	14.3		14.7									
9.	CHLE					3.4	5.7	3.5	12.2	4.3	12.5	4.7	12.8	14.2	15.3								
10.	CHVI	3.3		3.4		3.6	5.0	3.7	6.3	4.8	10.2	14.4	11.2	14.7	15.1								
11.	CRFL	2.4																					
12.	CYMO	2.3	6.1	3.8	11.2																		
13.	DEPI	3.3	5.8	3.5	7.3	3.7	9.2	14.3	13.2	14.5	15.3	14.4	15.3	14.8	15.8								
14.	ERCE	2.2						4.2	8.3	4.4	9.1	4.9	10.3	14.4	15.2								
15.	EROV	3.1	5.2	3.3	7.2	4.0	8.2	4.8	9.6	14.3	11.3	14.4	13.2	14.6									
16.	EULA-CELA	3.2		3.4	5.8	3.5	10.0	4.2	12.2	4.5	12.3	14.2	12.5	14.7	13.4								
17.	GRSP	3.3	5.0	3.4	6.2	3.5	10.7	3.7	11.4	14.2		14.8	15.2	14.8	15.3								
18.	GUSA-XASA	3.2		3.4		3.5	5.3	4.2	7.3	4.7	11.3	14.4	12.2	14.6									
19.	HAAC	3.0	5.0	3.3	7.6	4.4	11.2	4.8	15.4	14.1		14.2											
20.	KOCR	2.4		4.2	6.7	4.3	7.5																
21.	LARE	3.3		3.5	7.4			14.6	15.1	14.7	15.3	14.8	15.5	14.8	15.8								
22.	LEPU					3.3	7.2	4.2	10.8	4.6	12.4			14.5	15.2								

PHENOLOGICAL INVENTORY Study Area Farson 1978 Type-site ARTR-AGSM

SPECIES IDENTIFICATION		VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
		22 May		7 June		27 June		17 July		16 Aug		1 Sep		3 Nov									
1.	OPPO	1.2		2.1		3.2	5.4	3.4	10.3	3.5		4.2		4.7									
2.	ORHY	2.8		3.4		3.5	6.3	4.3	12.5	14.1	13.7	14.2	13.8	14.6	15.4								
3.	PECL	3.3	6.2	3.4	7.5	4.2		4.7	13.5	14.3	15.2	14.6	15.4	14.7	15.6								
4.	PHHO	2.3	6.2	3.4	9.0	4.4	12.3	14.2	12.7	14.5	15.5	14.6	15.6	14.7	15.8								
5.	POSE	3.3		3.5	6.3	4.2	7.5	14.2	13.7	14.4	15.2	14.5	15.4	14.8	15.8								
6.	SIHY	3.4		3.4	5.3	3.6	7.2	4.4	15.1	14.3	15.2	14.4	15.3	14.5	15.6								
7.	SILI	3.3	6.2	3.4	7.1	3.7	9.2	4.9	13.3	14.2	13.7	14.4	13.8	14.6	13.8								
8.	SPCO	3.0		3.3	6.3	3.5	9.2	4.3	11.7	4.7		14.1											
9.	STCO	2.8		3.2	5.1	2.9	6.3	3.7	13.2	4.4	13.4	14.1	15.2	14.4	15.5								
10.	TECA					3.8		4.3	10.2	14.2	13.7	14.4	15.2	14.7	15.6								
11.																							
12.																							
13.																							
14.																							
15.																							
16.																							
17.																							
18.																							
19.																							
20.																							
21.																							
22.																							

PHENOLOGICAL INVENTORY Study Area Horse Creek 1978 Type-site ARNO-AGSP

SPECIES IDENTIFICATION	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
	29 Apr		25 May		8 June		30 June		20 July		10 Aug		3 Sept		24 Sept							
1. AGSP	3.4		4.2	6.2	4.3	6.4	4.5	6.7	4.5	12.1	4.8	13.3	14.4	13.7	14.4	15.8						
2. ARFE			3.3		3.3	6.0	4.3	6.6	4.4	11.4	4.6	13.3	14.1	15.2	14.6	15.7						
3. ARNO	1.3		2.2		2.5		2.8		3.5	5.1	4.6	5.6	14.0	5.9	14.1	8.7						
4. ARTR	1.2		3.2		3.2		3.3				4.8	5.5	4.9	5.7	4.9	8.5						
5. ASPU	2.2	6.1	3.2	11.2	3.2	12.0	4.7	12.6	14.3	15.2	14.9	15.9										
6. BRTE			4.0	6.4	4.3	6.4	14.6	13.1	14.7	15.6	14.7	15.7	14.8	15.8	14.9	15.9						
7. CAAN	2.4	6.2	3.3	7.2	3.4	7.3	4.8	11.4	14.6	15.7	14.7	15.8	14.8	15.8	14.9	15.9						
8. CANU							4.6	11.6	14.1	11.7	14.6	15.4	14.8	15.8	14.9	15.9						
9. CHDE			2.2		3.1		3.7	5.7	3.8	10.2	4.4	12.6	14.2	13.3	14.6	13.7						
10. CIR	2.3		3.2	5.2	3.5	5.4	4.4	7.7	14.2	13.2	14.4	15.3	14.7	15.7	14.8	15.9						
11. COPA	2.3		3.3		3.3										14.5	15.9						
12. CRBR	2.3		3.3	6.4	3.5	8.2	4.6	8.7	14.4	15.2	14.7	15.3	14.9	15.9	14.9	15.9						
13. DEPI			3.2	6.2	3.3	7.0	14.5	12.7	14.7	15.6	14.8	15.8	15.9	15.9	14.9	15.9						
14. EULA-CELA			3.5				4.6	7.4	4.7	7.9	4.8	8.8	4.9	12.3	4.9	11.5						
15. GACO	2.4		3.0		3.4	6.2	4.6	12.4	4.7	12.2	4.8	13.2	4.8		14.3							
16. GUSA-XASA	3.1		3.3		3.3		3.4		3.5	5.1	4.2	5.7	4.5	8.3	4.8	8.7						
17. HAAC	3.3	5.3	3.2	6.5	3.3	9.2	4.4	13.0	4.6	15.2	4.7	15.4	14.4	15.7	14.6	15.9						
18. HAGL					3.3	6.2																
19. LARE	1.4		3.2	6.0	3.3	6.2	14.3	12.6	14.7	15.8	14.8	15.8	14.8	15.8	14.9	15.9						
20. LOOR	2.1	6.3	3.2	5.5	4.4	11.0																
21. MAGR					3.2		3.4	7.2	4.2	13.4												
22. OPPO	1.1		1.7		2.2	5.1	3.5	7.3	4.3	9.7	4.7	13.1	14.1		14.5	15.8						

PHENOLOGICAL INVENTORY Study Area Horse Creek 1978 Type-site ARNO-AGSP

SPECIES IDENTIFICATION		29 Apr		25 May		8 June		30 June		20 July		10 Aug		3 Sept		24 Sept							
		VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
1.	ORHY									14.1	13.8	14.1	13.8	14.4	15.2	14.6	15.8						
2.	PECL			3.4	5.9	3.3	7.5	4.7	12.3	4.7	13.3	4.8	13.7	14.5	15.7								
3.	PHHO	2.1	6.1	3.1	8.3	3.5	9.3	4.7	13.2	4.8		14.2		14.6		14.8							
4.	POSE	3.1		3.3		3.4		14.3	12.4	14.5		14.7	15.6	14.8	15.8	14.9	15.9						
5.	RHTR			2.8		3.1		3.3		3.7		4.4		4.8		14.4							
6.	SAKA	2.2								4.2	5.4	4.3	7.3	4.4	11.2	14.1	12.5						
7.	SIHY	3.2		4.2		4.3	5.5	4.6	10.3	4.7		14.3	13.7	14.7	15.6	14.9	15.9						
8.	SPCO	2.3		3.2		3.3	6.2	4.6	11.8	4.9	12.4	14.2		14.2		14.4							
9.	STCO											14.1	13.8	14.4	15.3	16.6	15.9						
10.	VINU	3.1	6.2	3.5	6.5					4.6													
11.	YUGL	1.0				2.2		3.5		3.7		4.5	15.2	4.6	15.7	14.2							
12.	ZYVE	3.3		3.4	5.2	3.4	5.5																
13.																							
14.																							
15.																							
16.																							
17.																							
18.																							
19.																							
20.																							
21.																							
22.																							

PHENOLOGICAL INVENTORY Study Area Horse Creek 1978 Type-site ARTR-AGSM

SPECIES IDENTIFICATION		VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
		29 Apr		25 May		8 June		30 June		20 July		10 Aug		3 Sept		24 Sept							
1.	AGSM	2.4		4.1		4.4		4.5	6.4	4.7	7.6	4.8	10.2	14.1	13.3	14.3	15.2						
2.	AGSP	3.4		4.2	5.0	4.3	6.5	4.5	7.3	4.6	12.6	4.8	13.3	14.1	13.3	14.4	15.8						
3.	ALTE			3.3	7.3	3.4	7.4	14.3	12.8	14.4	15.4	14.6	15.7	14.7	15.8	14.9	15.9						
4.	ANDI			3.0		3.3	5.3																
5.	ARTR	1.2		2.4		2.6		3.3	5.0	3.7	5.2	4.5	5.5	4.9	5.9	14.1	8.4						
6.	BRJA											14.5	15.4	14.7	15.6	14.9	15.8						
7.	BRTE	3.2		4.2	5.5	4.3	6.3	14.2	11.4	14.4	15.4	14.6	15.6	14.7	15.7	14.9	15.9						
8.	CAAN	3.5	6.2	3.3	6.3	3.3	7.2	14.3	11.4	14.5	15.2	14.7	15.8	14.9	15.9	14.9	15.9						
9.	CANU							14.0	8.7	14.6	15.5	14.7	15.8	14.9	15.9	14.9	15.9						
10.	CHDE	2.2		2.4		3.2		3.8	5.7	4.4	12.3	14.0	12.7	14.3	13.3	14.6	13.7						
11.	COPA	3.2		3.2																			
12.	CRAC	2.3		3.2	5.1	3.4	6.2	4.6	8.7	14.8	15.7	14.8	15.8	14.8	15.9	14.9	15.9						
13.	DEPI			3.4	7.2	3.4	7.3	14.3	11.7	14.4	15.5	14.6	15.6	14.8	15.8	14.9	15.9						
14.	ERPU			3.2	5.2	3.4	7.1	4.6	9.6	14.0	13.7												
15.	EULA-CELA			3.3	5.2	3.4	5.3	4.3	7.7	4.5	8.5	14.1	9.2	14.2	11.3	14.1	11.5						
16.	LARE	2.3		3.2	6.2	3.5	7.2	14.3	12.6	14.7	15.7	14.7	15.7	14.9	15.8	14.9	15.9						
17.	LASE											4.7	9.3	4.6	10.6	14.1	12.7						
18.	LEDE			3.2	6.1	3.4	6.2	14.1	12.3	14.3	13.4	14.6	15.7	14.9	15.9	14.9	15.9						
19.	LOOR	2.2	6.2	3.2	6.1					14.3	15.3												
20.	MACA					3.2		4.3	5.0	4.4	9.3												
21.	MAGR					3.2	5.2																
22.	OPPO	1.2		1.4		2.1		3.3	9.2	3.5	9.5	4.6		14.2		14.4	15.8						

PHENOLOGICAL INVENTORY Study Area Horse Creek 1978 Type-site ARTR-AGSM

SPECIES IDENTIFICATION	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
	29 Apr		25 May		8 June		30 June		20 July		10 Aug		3 Sept		24 Sep							
1. PECL			3.4	5.3	3.4	7.4			4.6	15.2	14.8	15.4	14.5	15.8								
2. PHHO	2.2	6.1	3.1	8.2	3.4	9.1	4.3	13.3	4.7	13.4	4.9	13.6	14.5	15.6	14.8	15.9						
3. POSE	2.2		3.2	6.3	3.4	6.5	14.2	11.4	14.5		14.6	15.6	14.7	15.8	14.9	15.9						
4. SIHY	3.2		4.2		4.4	6.2	7.7	10.4														
5. SPCO	2.8		3.1		3.4	6.1	4.4	11.7	14.1	15.3	14.3		14.3		14.4							
6. STCO	2.4																					
7. TRDU	3.1		3.4	6.5	3.6	7.3	4.4	11.9	14.2	13.4	14.5	15.6	14.9	15.9	14.9	15.9						
8. VINU	2.1				3.2	11.2	4.4		14.4													
9. XASA-GUSA	3.1		3.3		3.4		3.8		4.1	5.0	4.3	5.5	4.7	7.2	14.0	8.7						
10. ZYVE	2.3		3.1	5.4	3.3	5.6			14.5	15.6												
11.																						
12.																						
13.																						
14.																						
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20.																						
21.																						
22.																						

PHENOLOGICAL INVENTORY Study Area Mesa Antelope 1978 Type-site ARTR-AGSM

SPECIES IDENTIFICATION		VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
		22 May		6 June		26 June		17 July		8 Aug		30 Aug		4 Nov.									
1.	AGSM	3.2		3.4		3.7	10.7	4.4	11.2	14.2		14.4		17.0									
2.	ARHO^2	3.3	6.1	4.4	9.3	4.5	9.6	14.6	15.5	14.8	15.7	14.8	15.8	17.0									
3.	ARTR	2.2		2.7		3.2	5.0	3.5	5.3	4.4	5.7	14.3	7.2	14.5	13.8								
4.	ASCI			3.3	9.0	3.5	10.0																
5.	ASSP	2.4	7.2	2.6	9.1					4.9													
6.	ATGU					3.5	9.4	4.3	11.3	4.5	13.3	4.5		14.5									
7.	CAEL	2.7	7.5	2.8	8.4	3.3	9.4	3.5	11.2	14.0	13.2	14.2	13.4	17.0									
8.	CHVI	2.3		3.3		3.3	5.0	3.6	6.7	3.7	8.7	14.3	13.1	14.7	15.4								
9.	CORA					3.2		3.4	6.2														
10.	ERCA^2	2.4	7.3	3.2	7.4	3.3	8.3			4.7	13.2	4.7	13.5	14.2	15.2								
11.	EROV	2.2	5.2	3.1	7.4	4.2	9.3	4.6	12.2	4.8	13.3	14.0	15.2	17.0									
12.	EULA-CELA	3.2		3.4		3.5	6.1	4.5	10.2	4.6	11.3	14.1	12.3	14.5	13.2								
13.	HAAC			3.1	7.1	3.5	9.8	4.3	15.2	14.3	15.5	14.5	15.6	17.0									
14.	LEPU			3.3	7.2	3.4	9.0	3.6	10.5	14.2	13.3	14.5	15.2	17.0									
15.	MACA			3.3	6.3	3.6	6.4	3.7	6.4	3.8	9.3	4.7	12.3	14.8	15.8								
16.	OPPO	1.4		2.0		2.3		3.2	7.4	3.8	10.4	4.2											
17.	ORHY	2.7				3.5	6.3	4.8	12.3	14.3	13.4	14.4	13.5	17.0									
18.	PHHO	2.3	8.2	3.2	9.0	14.2	12.2	14.6	15.4	14.7	15.7	14.7	15.7	17.0									
19.	POFE	2.8	6.5	2.8	7.2	3.3	12.3	4.5	12.6	14.3	13.4	14.4	15.2	17.0									
20.	POSE	3.4	6.1	3.5	6.3	14.2	8.3	14.4	15.6	14.5	15.6	14.5	15.6	17.0									
21.	SIHY	3.3		3.3		3.4	6.4	14.2	13.5	14.5	15.6	14.6	15.6	17.0									
22.	SILI	3.3	6.1	4.4	6.5	14.1	9.0	14.6	15.7	14.7	15.8	14.7	15.7	17.0									

PHENOLOGICAL INVENTORY Study Area Mesa Antelope 1978 Type-site ARTR-AGSM

SPECIES IDENTIFICATION	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
	22 May		6 June		26 June		17 July		8 Aug		30 Aug		4 Nov									
1. SPCO					3.5	7.3																
2. STCO	3.3		3.4		3.5	6.3	14.1	13.4	14.4	15.2	14.4	15.3	17.0									
3. TRGY	2.4		3.3		3.3																	
4.																						
5.																						
6.																						
7.																						
8.																						
9.																						
10.																						
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18.																						
19.																						
20.																						
21.																						
22.																						

PHENOLOGICAL INVENTORY Study Area Owl Draw 1978 Type-site AGSM-AGSP-ARNO-ARTR

SPECIES IDENTIFICATION		VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
		26 May		9 June		1 July		24 July		11 Aug		4 Sept		29 Sept									
1.	ACLA											14.2	13.4										
2.	AGSM	3.2		3.6		4.1		4.2	6.2	4.8		14.1	13.3	14.7	15.7								
3.	AGSP	3.7		3.8		4.0		4.5	7.3	4.9		14.1	13.8	14.8	15.8								
4.	ALTE	3.2	5.5	3.5	10.7			16.3		16.6		16.7		14.9	13.9								
5.	ANRO	2.9		3.0																			
6.	ARHO			3.3	5.2	3.8	8.5	14.1	15.2	14.2	15.3	14.3	15.4	14.7	15.9								
7.	ARHO^2			3.3	6.7																		
8.	ARNO	2.2		2.2		2.9	5.0	3.3	5.1	4.5	5.5	14.1	6.0	14.4	9.4								
9.	ARTR	2.4		2.4		3.3	5.0	3.5	5.7	4.6	5.7	14.2	6.1	14.3	9.3								
10.	ASMI^2	3.4	6.1	3.3	7.5	4.0	8.5 9.2	4.5	11.3	4.7	10.3	14.3	13.5	14.8	15.9								
11.	ASPU	3.2	6.2	3.3	9.0					4.7	13.4	4.8	13.5	14.7	15.8								
12.	AST	3.2	6.1	3.3	6.2			4.7	14.3	14.2	15.2	14.4	15.4	14.5	15.9								
13.	BASA	3.1	6.4	3.3	7.3			14.1	15.3	14.2	15.4	14.4	15.9	14.9	15.9								
14.	CACH	3.3	6.2	3.3	6.4	4.0	8.7	14.3	15.3	14.6	15.7	14.9	15.9										
15.	CAMI					4.9	13.2	14.4	15.3	14.5	15.5	14.9	15.9	14.9	15.9								
16.	CANU							4.3	11.3	14.3	15.2	14.7	15.8	14.9	15.9								
17.	CHDO			3.3		3.7	8.5	4.5	13.4	4.7	13.7	4.8	13.7										
18.	CIR			3.2	5.2			4.7	10.3	4.8	13.3	4.9	13.6	14.5	13.8								
19.	CORA									4.4	9.4	14.2	13.2										
20.	CRAC	3.0	5.2	3.2	6.2			14.5	13.7	14.5	15.6	14.9	15.9	14.9	15.9								
21.	CYMO	3.3	6.5	3.3	7.2			14.4	15.4	14.5	15.6	14.9	15.9	14.9	15.9								
22.	EROC	3.1	6.0	3.3	6.3	4.2	8.8	4.8	13.3														

PHENOLOGICAL INVENTORY Study Area Owl Draw 1978 Type-site AGSM-AGSP-ARNO-ARTR

SPECIES IDENTIFICATION	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
	26 May		9 June		1 July		24 July		11 Aug		4 Sept		29 Sept									
1. EULA-CELA	3.2						4.3	6.0	14.2	8.3	14.3	9.4	14.5	12.5								
2. GRSQ									4.3	9.3	4.7	12.6										
3. HAAC	3.3	5.2	3.3		3.8	9.0	4.2	13.3	4.5	15.2	14.1	15.4	14.7	15.9								
4. JUOS	1.1		1.7		2.2		3.2		3.5		4.5		14.2									
5. KOCR	2.4		3.4	5.4	4.6	9.5	4.7	15.1	4.8	15.2	14.0	15.5	16.4	15.9								
6. LASE											14.2	13.3										
7. LERE	2.3		3.4	5.2			14.7	15.7	14.8	15.8	14.9	15.9	14.9	14.9								
8. LILE	3.2	5.2	3.4	6.2	4.0	8.5	4.7	13.6	4.7	13.7	14.2	15.0	14.3	15.8								
9. MAGR							4.4	11.5	4.6	13.4	4.8	15.2										
10. MELO	2.2		3.3	7.2																		
11. OPPO	2.3	6.2	2.5	6.4			3.4		4.6		4.7		14.3									
12. ORHY	2.8						14.0	13.2	14.1	13.3	14.3	13.7	14.7	15.9								
13. PECL	3.2	5.8	3.4	7.4			14.2	13.4	16.1	13.7	16.3	15.2										
14. PHHO	2.4	6.7	3.4	9.4	14.3	15.4	14.5	15.8	14.5	15.8	16.1		14.7	15.9								
15. POFE	3.2	6.2	3.3	6.4			14.2	15.0	14.3	15.3	14.5		14.9	15.9								
16. POSE	3.1		3.2		3.3		4.4		14.2	15.4	14.6		14.9	15.9								
17. SECA	3.2	5.2	3.4	7.3	4.0	8.3	14.4	15.5			14.6	15.7	14.9	15.9								
18. SELA	3.2	5.2	3.3	5.4	4.0	7.5			4.2	13.2												
19. SPCO	3.1				4.0	8.2	4.3	10.3			14.1		14.7									
20. STCO							14.2	13.5	4.9	13.7	14.3	15.0	16.2	15.9								
21. TRDU							4.7	15.2	14.2	15.3	14.4	15.5	14.9	15.9								
22. TRGY	3.2		3.3		3.4	13.4	4.7		14.3													

PHENOLOGICAL INVENTORY Study Area Owl Draw 1978 Type-site AGSM-AGSP-ARNO-ARTR

SPECIES IDENTIFICATION	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
	26 May		9 June		1 July		24 July		11 Aug		4 Sept		29 Sept									
1. VIAM	3.2		3.3	5.7	3.9	8.5	14.1		14.3		14.7		14.9									
2. VINU	3.1		3.2		3.6	7.5	4.2		4.4													
3. XASA-GUSA	3.1		3.3		4.0		4.3	5.6	4.5	6.2	4.7	11.2	14.2	11.5								
4. ZYVE	3.1		3.3	5.2																		
5.																						
6.																						
7.																						
8.																						
9.																						
10.																						
11.																						
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22.																						

PHENOLOGICAL INVENTORY Study Area Red Wash #2 1978 Type-site AGSM-AGSP-ARTR

	SPECIES IDENTIFICATION	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
		29 Apr		22 May		5 June		26 June		17 July		4 Aug		28 Aug		6 Nov							
1.	AGSM	2.3		2.8		3.6		3.5	6.3	3.8	11.4	4.8		14.3		17.0							
2.	AGSP	2.2		2.6		3.6		3.7	6.2	4.7	11.4	4.8	12.6	14.2		17.0							
3.	ALTE	17.0		2.7	5.3	3.2	6.3			14.5	12.7	14.8	15.6	14.8	15.7	17.0							
4.	ARHO	17.0		2.2				3.3	6.2					16.2	15.6	17.0							
5.	ARHO^2					3.2	6.1																
6.	ARTR	1.1		2.2		2.5		3.2		3.4	5.3	14.0	5.3	14.1	6.2	14.5	15.4						
7.	ASDI			2.4	6.4	2.5		3.3	7.3	4.2	11.8	4.8				17.0							
8.	ASKE			2.3	5.0																		
9.	ASPU			1.7		2.6	11.2	3.7	11.6	4.4	13.5					17.0							
10.	CHDO			2.4		3.2	5.1	3.4	6.3	14.2	15.0					17.0							
11.	CHNA	2.1		2.2		2.3		3.3		3.5	6.3	4.0	7.3	4.4	8.3	14.4	15.3						
12.	CHVI	2.1		2.4		2.5		3.2	5.2	3.5	5.8	4.5	7.5	4.5	7.7	14.4	13.8						
13.	CRFL			2.4		3.2	5.3	3.5	7.3	4.2	11.4	14.2	15.4	16.2	15.6	17.0							
14.	CYMO			2.4	5.0	3.2																	
15.	ERMI			2.3		3.0		3.3	6.0	3.6	7.4	3.7	7.6	4.3	8.2	14.2	15.3						
16.	EROV	2.3		2.4	6.1	3.7	6.3	3.4	7.2	4.2	9.6	14.2	13.5	14.4	15.2	17.0							
17.	EULA-CELA	2.5				2.7		3.7	7.3	4.0	10.2	4.8	11.4	14.2	12.0	14.4	13.2						
18.	GICO							3.2	7.3			4.5											
19.	GRSP			2.3	5.0	3.3	9.2	3.6	10.0	14.1	11.6	14.4	13.6	14.6	15.6	17.0							
20.	HAAC									4.2		14.1		14.2									
21.	LEPU			2.7		3.1	5.0	3.4	6.7	14.0	12.7	14.3	15.3	14.5	15.6	17.0							
22.	MACA													4.4	8.2	14.4	15.4						

PHENOLOGICAL INVENTORY Study Area Red Wash #2 1978 Type-site AGSM-AGSP-ARTR

SPECIES IDENTIFICATION	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
	29 Apr		22 May		5 June		26 June		17 July		4 Aug		28 Aug		6 Nov							
1. OPPO	17.0		1.2		1.4		2.4	6.3	3.7	10.6	4.6	13.7	4.6		14.3							
2. ORHY					3.2	5.3	3.4	5.7	3.7	12.6	14.4	13.4	14.6	15.2	17.0							
3. PEN	2.5		2.3		3.1	5.2	3.3	7.1	3.7	11.4	4.3	15.2	4.5	15.4	17.0							
4. PHHO	2.3	6.2	2.3	6.5	2.4	7.5	4.4	12.3	14.4	15.4	14.7	15.8	14.7	15.8	17.0							
5. POSE			3.1		3.3		4.2	7.4	14.3	15.4	14.6	15.7	14.7	15.7	17.0							
6. SILI			2.6	6.3	3.3	6.4	3.5	10.2														
7. SIHY			3.2		3.3		3.4	6.2					14.5	15.6	17.0							
8. STCO			2.7		3.2	5.0	3.7	6.2	3.8	12.7	14.3	15.2	14.4	15.5	17.0							
9. TECA	2.0		2.2		3.2		3.5		3.6	7.3	4.4	9.4	14.2	12.4	14.7	15.4						
10. VINU			2.2		2.8				4.2		4.7											
11.																						
12.																						
13.																						
14.																						
15.																						
16.																						
17.																						
18.																						
19.																						
20.																						
21.																						
22.																						

PHENOLOGICAL INVENTORY Study Area Shoshoni #7 1978 Type-site ARTR AGSM

SPECIES IDENTIFICATION		VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
		24 May		9 June		28 June		19 July		9 Aug		1 Sept		23 Sept									
1.	AGSM	3.1		3.4		4.3		4.5	13.3	4.8		14.4		14.6									
2.	ALTE	3.3	5.3	4.0	10.5	4.3	11.3	14.5	15.3	14.7	15.7	14.8	15.8	14.8	15.8								
3.	ARFE	3.3	5.2																				
4.	ARHO^2	3.4	6.2			14.1	11.2																
5.	ARTR	2.2		2.3		3.1	5.0	3.4	5.2	4.4	5.4	14.2	5.8	14.1	8.5								
6.	ASPU			3.4	9.0	4.3																	
7.	BOGR	3.3		3.4		3.6	6.4	3.8	11.7	4.3	13.1	14.2	13.6	14.4	15.9								
8.	BRTE			4.7	6.9	14.2	11.6	14.5	15.2	14.6	15.5	14.7	15.7	14.9	15.9								
9.	ERPU			3.0	5.0	3.3	8.7	4.3	13.3	4.7	13.4												
10.	LUPU			3.2	6.2	3.3	11.3	14.2	12.8	14.4	15.3	14.8	15.7	14.8	15.7								
11.	OPPO	1.2		2.1		3.3		4.2	9.3	14.1		14.2		14.4									
12.	ORHY					3.3	6.1	4.7	13.3	14.0	13.3	14.2		14.5									
13.	PHHO	2.4	5.7	3.0	7.0	3.3		4.5		4.7		14.4		14.8									
14.	PLPA	2.5		3.2	5.2	4.0	7.3	14.3	15.1	14.6	15.4	14.7	15.6	14.9	15.9								
15.	POSE	4.2		4.3	7.2	14.1	10.7	14.5	15.2	14.6		14.7	15.6	16.2	15.9								
16.	SIAL	2.3	5.3			4.6	8.7	14.7	15.6	14.8	15.8	14.8	15.8	14.8	15.8								
17.	SIHY					4.3	6.4	4.4	12.3	14.2	15.3	14.7	15.6	14.9	15.7								
18.	SPCO	3.1		3.2	5.1	3.4		4.4		14.0		14.3		14.6									
19.	STCO	2.5		3.3		3.4	6.2	3.6		4.4		4.8		14.3	15.9								
20.																							
21.																							
22.																							

PHENOLOGICAL INVENTORY Study Area Sweetwater 1978 Type-site ARTR-AGSM-ARNO

SPECIES IDENTIFICATION	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
	24 May		7 June		30 June		19 July		7 Aug		1 Sept		22 Sept									
1. AGSM	3.1		3.3		4.3		4.4		14.2		14.3		16.1									
2. ALTE	2.4	5.0	3.5	6.3	14.2	11.3	14.7	15.8	14.9	15.9												
3. ARFR	2.3		3.4		3.6	5.3	3.8	5.2	4.5	6.4	4.6	6.2	4.9	8.2								
4. ARHO	2.3		2.5	7.4	3.3	7.6	14.2	13.3	14.5	15.0	14.6	15.9	14.8	15.9								
5. ARHO^2	3.2	6.2	4.1	6.4	14.3	11.8	14.7	15.4	14.8	15.7												
6. ARNO	1.8		2.2		2.6	5.1	2.9	5.3	4.4	5.4	4.7	6.1	14.1	8.3								
7. ARTR	2.1		2.3		3.3		3.8	5.2	4.4	5.4	4.8	5.9	4.8	8.4								
8. ASMI	3.3	5.0			4.1	10.4	4.6	13.3	14.2	15.1												
9. ASPU	2.8		3.5		4.2		4.4	10.3	4.5		4.8		14.4									
10. ASSP	2.2		3.8	7.6	3.9	10.6	4.2	10.8	4.7		14.2	15.9	14.3	15.9								
11. CAEL	3.3		4.3	11.5	4.7	11.9	14.2	12.3	14.2	13.2	14.6		14.7									
12. CAFI	3.4		3.8	8.1	4.7	10.2	14.3	13.2	14.4	13.4	14.6	13.9	14.7	15.8								
13. CAS	3.1	5.0					14.8	15.9	14.9	15.9												
14. CELA											14.2	8.3										
15. CHDO	3.0	5.0	3.6	5.6			4.6	12.2	4.7	13.3												
16. CHNA	2.0		3.4		3.5	5.1	4.2	9.3	4.4		4.9	6.6	4.9	11.5								
17. CHVI	2.5		3.2		3.4	5.2	4.2	6.3	4.4	6.7	4.9	7.8	14.4	8.7								
18. COPA	3.1		3.3	6.2	3.4	7.4	4.3	11.8	4.4		4.8		4.9									
19. CRBR	3.3	6.2	3.6	8.5	3.8	9.4	4.5	13.0	4.7	13.7	14.3	15.8	14.8	15.9								
20. CRFL	3.0	5.0	3.6	7.4	3.8	8.4	4.2	12.3	4.4	13.6	14.7	15.6	14.9	15.9								
21. CYMO	3.3	6.3			14.3		14.8	15.8	14.8	15.8												
22. EROV	2.3	6.2	2.4	8.4	3.3	9.1	14.1	15.2	14.4	15.6	14.5	15.8										

PHENOLOGICAL INVENTORY Study Area Sweetwater 1978 Type-site ARTR-AGSM-ARNO

SPECIES IDENTIFICATION		VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
		24 May		7 June		30 June		19 July		7 Aug		1 Sept		22 Sept									
1.	KOCR	3.3	5.4	4.2	6.6	4.3	9.2	4.7	13.7	14.4	15.1	14.6	15.7	16.3	15.8								
2.	LEPU	3.0		3.3		3.4	6.3	3.8		14.2	13.7	14.4	15.9	14.7									
3.	MAGR							4.7	11.6	4.8	15.2	4.8											
4.	OPPO	1.3		2.3	5.2	2.7	6.3	3.2		4.1		4.6	15.8	4.8									
5.	ORHY	2.9		3.5		4.2	7.1	14.1	13.7	14.2	15.0	14.3	15.6	14.7	15.9								
6.	PEFR	3.3		3.8	7.5	4.7	11.8	4.8	12.3	14.2	13.5												
7.	PHHO	2.3		2.4		3.6	14.3	15.2	14.5	15.5	14.6	14.6	15.8	14.8									
8.	POSE											14.7	15.7	16.3	15.8								
9.	PSTE					3.4		4.2		4.7		14.2	15.9	14.4									
10.	SADE			2.4		3.5		4.7		14.2		14.4		14.5									
11.	SPCO	3.1		3.5	5.2			4.3		4.7													
12.	CAFI	3.2		3.5	5.5	3.7	7.3	14.2	13.3	14.4	15.2	14.6	15.8	16.4	15.9								
13.	TECA	2.4		3.2		3.6	5.0	4.1	7.3	4.4	8.2	4.7	9.5	14.0	12.3								
14.	VINU	2.7	6.0					4.4		4.7													
15.	ZYVE	3.2	6.1	4.5	10.4																		
16.																							
17.																							
18.																							
19.																							
20.																							
21.																							
22.																							

PHENOLOGICAL INVENTORY Study Area Upper Government Draw 1978 Type-site ARTR-AGSM

SPECIES IDENTIFICATION		VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
		24 May		7 June		26 June		19 July		9 Aug		1 Sept		23 Sept									
1.	AGSM	3.2		3.4	6.3	3.6		4.3	12.2	14.4	13.1	14.4	15.3	14.8	15.5								
2.	ALTE	2.6	5.2	3.2	3.2	5.7				14.8	15.8	14.2	15.8	14.8	15.8								
3.	ANRO	2.3																					
4.	ARLI	2.8	6.1	3.2	6.3	4.6	12.3	14.3	15.5	14.6	15.7	14.7	15.8	14.7	15.8								
5.	ARTR	2.2		2.4		3.0	5.0	3.3	5.1	14.0	5.4	14.2	5.9	14.3	8.7								
6.	ASPU			3.3						14.7	15.8	14.7	15.8	14.7	15.8								
7.	BOGR	3.2		3.4		3.4		4.3		4.7		14.4		14.6									
8.	BRTE							14.7	15.6	14.7	15.7	14.8	15.8	14.9	15.9								
9.	CAS	3.3	6.7	3.5	7.0	4.3	10.3	14.3	15.4	14.8	15.8	14.9	15.9	14.9	15.9								
10.	CHVI			3.2		3.3		3.8	6.3	4.1	7.2	4.4	8.7	14.7	11.5								
11.	CRAC	3.3	7.2	3.3	7.3	4.4	11.2	14.7	15.8	14.8	15.9	14.9	15.9	14.9	15.9								
12.	DEPI	2.2																					
13.	ERPU	2.4	6.2	3.2	6.6	3.5	7.1	4.5	9.2	14.1	13.6	14.6	15.2	14.9	15.9								
14.	KOCR	3.4	5.3	4.2	6.3	4.3	8.2	4.8	13.2	14.1	13.7	14.2	15.3	14.3	15.7								
15.	LARE	2.1	6.4																				
16.	LERE	2.4	5.0																				
17.	MACA					4.3	8.7	4.7	9.2	14.5	15.6	14.6	15.7	14.7	15.8								
18.	OPPO	2.2		2.1	5.2	7.3	6.5	3.3	9.7	14.1		14.2		14.3	15.8								
19.	PECL	2.2		3.2	5.2																		
20.	PHHO	2.3	5.2	3.2	7.3	4.2	10.1	14.2	13.3	14.7	15.8	14.8	15.9	14.9	15.9								
21.	PLPA					4.4	7.4	14.2	13.5														
22.	POSE	3.3		4.1		4.3		14.2	15.1	14.6	15.5	14.7	15.7	14.9	15.8								

PHENOLOGICAL INVENTORY Study Area Upper Government Draw 1978 Type-site ARTR-AGSM

SPECIES IDENTIFICATION		VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR	VEG	REPR
		24 May		7 June		26 June		19 July		9 Aug		1 Sept		23 Sept									
1.	SPCO	2.3		3.2	5.3	3.4	10.3	4.6		4.9		14.1	13.4	14.7	15.4								
2.	STCO	3.1		3.4	5.1	3.6	6.3	14.2	13.3	14.2	15.2	14.5	15.4	16.3	15.9								
3.	TRDU							14.1	13.3	14.4	15.3	14.6	15.7	14.6	15.7								
4.	VIAM	3.0	5.0	3.3	6.4	4.2	9.3	14.2	12.7	14.6	15.5	14.7	15.7	14.9	15.9								
5.	VINU	2.4																					
6.																							
7.																							
8.																							
9.																							
10.																							
11.																							
12.																							
13.																							
14.																							
15.																							
16.																							
17.																							
18.																							
19.																							
20.																							
21.																							
22.																							

TABLE IV. Prime species intensive phenological inventory by exclosure, plant species, and data collection date for each permanently identified plant. Intra-tabular table of contents and check list of sampling times.

	Sampling Time									Page
	1	2	3	4	5	6	7	8	9	
Agropyron smithii										
Bud Kimball Exclosure		X	X	X	X	X	X		X	42
Cumberland #3 "		X	X	X	X	X	X		X	49
Demer "		X	X	X	X	X	X		X	56
Farson "		X	X	X	X	X	X		X	63
Horse Creek "	X	X	X	X	X	X	X	X		70
Mesa Antelope "		X	X	X	X	X	X		X	78
Owl Draw "		X	X	X	X	X	X	X		85
Red Wash #2 "	X	X	X	X	X	X	X		X	92
Shoshone Ant #7 "		X	X	X	X	X	X	X		100
Sweetwater "		X	X	X	X	X	X	X		107
Upper Gov't Draw "		X	X	X	X	X	X	X		114
Agropyron spicatum										
Cedar Mountain Exclosure	X	X	X	X	X	X	X			121
Cumberland #3 "		X	X	X	X	X	X		X	128
Demer "		X	X	X	X	X	X		X	135
Horse Creek "	X	X	X	X	X	X	X	X		142
Owl Draw "		X	X	X	X	X	X	X		150
Red Wash #2 "	X	X	X	X	X	X	X		X	157
Artemisia nova										
Horse Creek Exclosure	X	X	X	X	X	X	X	X		165
Owl Draw "		X	X	X	X	X	X	X		173
Sweetwater "		X	X	X	X	X	X	X		180
Artemisia tridentata										
Bud Kimball Exclosure		X	X	X	X	X	X		X	187
Cedar Mountain "	X	X	X	X	X	X	X			194
Cumberland #3 "		X	X	X	X	X	X		X	201
Demer "		X	X	X	X	X	X		X	208
Farson "		X	X	X	X	X	X		X	215
Horse Creek "	X	X	X	X	X	X	X	X		222
Mesa Antelope "		X	X	X	X	X	X		X	230
Owl Draw "		X	X	X	X	X	X	X		237
Red Wash #2 "	X	X	X	X	X	X	X		X	244
Shoshone Ant #7 "		X	X	X	X	X	X	X		252
Sweetwater "		X	X	X	X	X	X	X		259
Upper Gov't Draw "	X	X	X	X	X	X	X	X		266

Average date for sampling times:

#1 - April 29
#2 - May 24
#3 - June 8
#4 - June 28
#5 - July 19
#6 - August 9
#7 - September 1
#8 - September 23
#9 - November 4

AGROPYRON SMITHII Study Area Bud Kimball Date May 25, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	3.1		.2	17.0			2	
2.	3.2		.2	14.0			1	
3.	3.0		.1	20.0			1	
4.	3.5		.2	25.5			1	
5.	3.5		.2	25.5			1	
6.	3.2		.1	13.5			2	
7.	3.0		.1	7.0			1	
8.	3.0		.1	10.0			1	
9.	3.6		.2	22			1	
10.	3.5		.1	20			1	
11.	3.4		.2	17.0			1	
12.	3.4		.2	16.0			1	
13.	4.1		.3	28.5			1	
14.	4.1		.3	20.1			1	
15.	3.8		.3	19.8			1	
16.	3.4		.2	12.0			1	Plant dead (replaced)
17.	3.4		.2	16.0			1	
18.	4.1		.2	17.5			1	Plant dead (replaced)
19.	4.1		.3	19.0			1	
20.	4.1		.3	28.7			3	

AGROPYRON SMITHII Study Area Bud Kimball Date June 8, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	11.2		0.2	11			2	
2.	3.7		0.2	17			1	
3.	4.3		0.2	21			1	
4.	4.3		0.2	19			1	
5.	4.3		0.2	13			1	
6.	4.3		0.2	14			2	
7.	4.2		0.1	7			1	
8.	3.4		0.2	10			1	
9.	4.4		0.3	18			1	
10.	4.4		0.2	22			1	
11.	4.3		0.2	23			1	
12.	4.2		0.3	17			1	
13.	4.5		0.1	14			1	
14.	4.3		0.3	19			1	
15.	4.2		0.3	18			1	
16.	3.4		0.1	11			1	
17.	4.3		0.3	15			1	Plant is dead.
18.	4.6		0.3	18			1	
19.	4.5		0.4	19			1	
20.	4.4		0.3	32			5	

AGROPYRON SMITHII Study Area Bud Kimball Date June 26, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	4.5		0.2	18.1			2	
2.	3.8		0.2	17.5			1	
3.	4.5		0.2	28.2			1	
4.	4.4		0.2	20.4			1	
5.	4.5		0.2	13.3			1	
6.	4.5		0.2	14.2			2	
7.	4.5		0.1	7.5			1	
8.	3.5		0.2	18.6			1	
9.	4.5		0.2	28.1			1	
10.	4.5		0.2	21.1			1	
11.	4.4		0.2	19.6			1	
12.	4.3		0.3	16.0			1	
13.	4.5		0.3	20.2			1	Plant is gone.
14.	4.6		0.3	24.5			1	
15.	4.4		0.3	20.6			1	
16.	3.5		0.2	11.5			1	
17.	4.5		0.2	15.9			1	
18.	4.5		0.3	18.0			1	
19.	4.6		0.3	20.0			1	
20.	4.5		0.3	29.5			3	

AGROPYRON SMITHII Study Area Bud Kimball Date July 19, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	4.6		.2	18			1
2.	4.3		.2	19			1
3.	4.3		.3	30			1
4.	4.3		.2	20			1
5.	4.3		.3	14			1
6.	4.4		.3	31			1
7.	4.3		.2	8			1
8.	4.2		.2	10			1
9.	4.4		.3	26			2
10.	4.4		.2	22			1
11.	4.7		.3	24			2
12.	4.7		.3	17			1
13.	4.7		.3	20			1
14.	4.8		.4	24			1
15.	4.5		.3	21			1
16.	4.5		.3	15			1
17.	4.7		.3	16			2
18.	4.6		.4	19			1
19.	4.7		.4	20			1
20.	4.6		.3	29			4

AGROPYRON SMITHII Study Area Bud Kimball Date Aug. 10, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	14.2		.2	18			1
2.	14.1		.2	19			1
3.	4.7		.2	17			1
4.	14.1		.2	20			1
5.	14.2		.2	14			1
6.	14.5		.2	21			1
7.	4.9		.3	15.6			1
8.	14.6		.2	10			1
9.	4.9		.3	17.0			2
10.	14.1		.2	22			1
11.	14.1		.3	24			2
12.	4.9		.3	17.0			1
13.	14.0						1
14.	4.9		.4	23.5			1
15.	4.9		.3	21.0			1
16.	4.9		.2	13.6			1
17.	14.3		.3	16.0			2
18.	14.1		.4	19			1
19.	4.9		.4	20.5			1
20.	14.1		.3	30.0			4

AGROPYRON SMITHII Study Area Bud Kimball Date Sept. 9, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	14.2						
2.	14.3						
3.	14.0						
4.	14.2						
5.	14.7					DAMAGED	
6.	14.5						
7.	14.6						
8.	14.7						
9.	14.2						
10.	14.2						
11.	14.3						
12.	14.3						
13.	14.2						
14.	14.2	13.1					
15.	14.4						
16.	14.2						
17.	14.2						
18.	14.2						
19.	14.2						
20.	14.2						

AGROPYRON SMITHII Study Area Bud Kimball Date Nov. 1, 1978

PLANT NO.	PHENO. STAGE SCORE VEG.	REPR.	MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
1.	16.1		.1	3.1			1
2.	16.1		.1	1.2			1
3.	16.2		.1	5.2			1
4.	16.1		.1	2.4			1
5.	17.5						
6.	17.5						
7.	17.4						
8.	17.4						
9.	17.5						
10.	16.1		.1	2.1			1
11.	17.5						
12.	17.5						
13.	17.5						
14.	17.5						
15.	17.5						
16.	17.5						
17.	17.5						
18.	17.5						
19.	17.5						
20.	17.5						

AGROPYRON SMITHII   Study Area Cumberland #3   Date May 23, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKELETS/CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	3.1		.2	22.5			6
2.	4.2		.3	19.5			1
3.	4.0		.2	10.5			1
4.	3.5		.2	16.5			2
5.	3.1		.2	24.5			1
6.	4.0		.2	19.0			1
7.	4.2		.2	19.0			1
8.	4.0		.3	24.0			1
9.	3.5		.2	18.2			1
10.	4.0		.2	19.0			1
11.	3.5		.2	16.2			5
12.	4.0		.2	16.5			2
13.	4.2		.2	18.5			1
14.	4.2		.2	26			3
15.	3.6		.2	18.0			2
16.	4.2		.3	18.0			1
17.	4.0		.2	19.0			3
18.	3.5		.2	13.0			1
19.	3.8		.2	19.5			1
20.	3.8		.2	18			2

AGROPYRON SMITHII Study Area Cumberland #3 Date June 6, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	4.2		0.3	28.0			6	
2.	4.2		0.3	21.3			1	
3.	4.0		0.2	15.1			1	
4.	4.0		0.3	18.2			2	
5.	3.5		0.3	25.1			1	
6.	4.0		0.3	21.2			1	
7.	4.2		0.3	20.1			1	
8.	4.1		0.2	27.3			1	
9.	4.0		0.3	21.1			1	
10.	4.0		0.2	24.5			1	
11.	3.8		0.2	25.7			5	
12.	4.0		0.3	18.4			2	
13.	4.3		0.3	19.6			1	
14.	4.4		0.3	23.8			3	Wrong Plant
15.	4.0		0.3	21.1			2	
16.	4.2		0.3	20.0			1	
17.	4.1		0.3	23.2			3	
18.	4.0		0.3	15.8			1	
19.	4.1		0.3	25.9			1	
20.	4.0		0.3	19.1			2	

AGROPYRON SMITHII Study Area Cumberland #3 Date June 26, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	4.4	5.7	.1	40.0			6
2.	4.3		.2	24.1			1
3.	4.1		0.2	20.9			1
4.	4.0		.2	21.0			2
5.	3.9		.2	23.2			1
6.	4.3		.6	25.0			1
7.	4.5	5.5	.2	23.7			1
8.	4.3		.2	28.1			1
9.	4.4		.2	26.2			1
10.	4.1		.2	28.0			1
11.	3.9	5.5	.2	30.5			5
12.	4.0		0.2	20.0			2
13.	4.4		.2	21.0			1
14.	4.4		.2	21.5			3
15.	3.9		0.2	23.6			2
16.	4.1		.2	26.0			3
17.	4.3		.1	20.5			1
18.	4.3		.1	20.5			1
19.	4.2	5.3	.2	28.0			2
20.	4.4		.2	22.1			

AGROPYRON SMITHII Study Area Cumberland #3 Date July 18, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	4.5	6.2	0.3	41.1	34	11	6	Wrong plant.
2.	4.5		0.3	24.5			1	
3.	4.5		0.2	24			5	
4.	4.1		0.3	21.2			4	
5.	4.6		0.2	23.5			2	
6.	4.5		0.2	20			1	
7.	4.6	9.6	0.3	24	24	7	4	
8.	4.6		0.2	35			1	
9.	4.5		0.3	28			1	
10.	4.3		0.3	29			3	
11.	4.5	9.1	0.3	34	32	9	8	
12.	4.6		0.3	20			1	
13.	4.5		0.2	23			2	
14.	4.7	10.5	0.3	20	32	10	1	
15.	4.4		0.2	23.7			2	
16.	4.5		0.3	31			7	
17.	4.4		0.3	30			1	
18.	4.5		0.3	34			1	
19.	4.0		0.3	29			2	
20.	4.5		0.3	23			4	

AGROPYRON SMITHII Study Area Cumberland #3 Date Aug. 8, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	14.0	13.1	0.3	41.1	34	11	6	Wrong plant.
2.	14.1		0.3	24.5			1	
3.	14.1		0.2	24			5	
4.	14.2	13.3	0.3	21.2			4	
5.	14.2		0.2	23.5			2	
6.	14.2		0.2	20			1	
7.	14.1	13.3	0.3	24	24	7	4	
8.	14.1		0.2	35			1	
9.	14.4		0.2	28			1	
10.	14.1	12.6	0.3	29			3	
11.	14.1	13.3	0.3	34	32	9	8	
12.	14.3		0.3	20			1	
13.	14.2	13.0	0.2	23			2	
14.	14.3	13.1	0.3	29	43	10	1	
15.	14.2		0.2	23.7			2	
16.	14.1		0.3	31			7	
17.	14.1		0.3	30			1	
18.	14.1		0.3	34			1	
19.	14.1		0.3	29			2	
20.	14.0		0.3	23			4	

AGROPYRON SMITHII Study Area Cumberland #3 Date Aug. 30, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	14.2	13.3	0.3	41.1	34	11	6	Wrong plant.
2.	14.2		0.3	23.5			1	
3.	14.3		0.2	23			5	
4.	14.2	13.3	0.3	21.2			4	
5.	14.3		0.2	23.5			2	
6.	14.2		0.2	20			1	
7.	14.3		0.3	24	24	7	4	
8.	14.2		0.2	35			1	
9.	14.3		0.2	28			1	
10.	14.3		0.3	29			3	
11.	14.4	13.4	0.3	34	32	9	8	
12.	14.4		0.3	20			1	
13.	14.2	13.3	0.2	23			2	
14.	14.3		0.3	29	43	10	1	
15.	14.3		0.2	23.7			2	
16.	14.3		0.3	31			7	
17.	14.3	13.4	0.3	30			1	
18.	14.3		0.3	34			1	
19.	14.6		0.3	29			2	
20.	14.4		0.3	23			4	

AGROPYRON SMITHII Study Area Cumberland #3 Date Nov. 4, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	16.7		.2	16			
2.	16.6		.2	11.2			
3.	12.0						
4.	16.3		.1	13			
5.	16.6		.1	9.5			
6.	17.0						
7.	16.5		.1	5.5			
8.	16.5		.1	7.5			
9.	16.6		.1	7.0			
10.	17.0						
11.	16.2		.2	10.0			
12.	16.6		.2	5.0			
13.	16.7		.2	14.0			
14.	16.2		.1	4.0			
15.	17.0						
16.	16.6		.2	8			
17.	16.3		.3	8			
18.	16.7		.3	17			
19.	16.2		.1	2.5			
20.	16.3		.3	7			

AGROPYRON SMITHII Study Area Demer Date May 25, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	3.2		.2	19.5			1	Plant dead (replaced).
2.	4.0		.2	12.1			1	
3.	3.1		.1	8			1	
4.	3.3		.1	12.5			1	
5.	4.1		.2	9.1			1	
6.	3.1		.1	12.5			3	
7.	3.5		.2	12.7			1	
8.	3.5		.1	13.0			1	Plant dead (replaced).
9.	3.2		.1	14.1			1	Plant dead (replaced).
10.	3.5		.1	13.0			1	
11.	3.2		.1	14.0			1	
12.	4.0		.1	15			1	
13.	3.7		.2	15			1	
14.	4.2		.2	18			1	
15.	3.5		.1	19			2	
16.	3.5		.1	11			1	Plant damaged (replaced).
17.	3.2		.1	16.5			1	
18.	4.7		.2	25.0			1	
19.	4.3		.1	15.0			2	
20.	2.1		.1	5			1	Plant may be damaged.

AGROPYRON SMITHII Study Area Demer Date June 6, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	3.6		0.2	14			1
2.	3.3		0.2	16			1
3.	3.2		0.2	11			1
4.	3.3		0.2	16			1
5.	4.2		0.3	22			1
6.	4.3		0.2	12			3
7.	4.4		0.3	17			1
8.	4.3		0.2	15			1
9.	4.3		0.2	16			1
10.	4.8		0.2	20			1
11.	4.4		0.2	19			1
12.	4.3		0.2	17			1
13.	4.3		0.2	13			1
14.	4.4		0.2	19			1
15.	4.3		0.1	17			2
16.	4.3		0.2	17			1
17.	4.3		0.2	22			1
18.	4.3		0.3	29			1
19.	4.3		0.2	13			2
20.	4.4		0.2	15			1

AGROPYRON SMITHII Study Area Demer Date June 28, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	3.7		.2	16.0			1
2.	3.5		.2	10.2			1
3.	3.6		.2	10.3			1
4.	4.0		.2	15.2			1
5.	4.3		.2	22.1			1
6.	4.4		.2	12.0			3
7.	4.5		.2	22.5			1
8.	4.5		.2	15.0			1
9.	4.9		.2	13.0			1
10.	4.5		.2	14.2			1
11.	4.5		.2	17.6			1
12.	4.5		.2	16.0			1
13.	4.9		.2	22.0			1
14.	4.5		.2	19.5			1
15.	4.6		.2	19.0			2
16.	4.5		.2	17.5			1
17.	4.4		.2	17.5			1
18.	4.6		.1	22.7			1
19.	4.6		.2	20.3			2
20.	4.5		.2	14.5			1

AGROPYRON SMITHII Study Area Demer Date July 20, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	4.4		.3	20			1
2.	4.4		.3	13			1
3.	4.6		.3	19			4
4.	4.3		.3	16			1
5.	4.6		.3	24			1
6.	4.4		.2	13			1
7.	4.6		.2	19			1
8.	4.4		.3	16			1
9.	4.4		.3	12			1
10.	4.4		.2	14			1
11.	4.5		.2	18			2
12.	4.5		.3	17			1
13.	4.9		.1	13			1
14.	4.4		.3	20			1
15.	4.2		.2	13			2
16.	4.4		.3	20			1
17.	4.4		.2	21			1
18.	4.7		.3	29			1
19.	4.7		.2	17			2
20.	4.6		.2	15			1

AGROPYRON SMITHII Study Area Demer Date Aug. 9, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKELETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	4.7			17			
2.	4.9			16.0			
3.	14.1						
4.	14.0						
5.	14.3						
6.	4.8			13			
7.	4.8			29.6			
8.	4.9			15.0			
9.	4.8			14			
10.	14.2						
11.	14.2						
12.	14.0						
13.	14.1						
14.	4.9			21.5			
15.	14.1						
16.	4.9			18.5			
17.	4.9			21			
18.	14.1						
19.	4.7			19.5			
20.	14.2						

AGROPYRON SMITHII Study Area Demer Date Sept. 2, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	14.2							
2.	14.2							
3.	14.4							
4.	14.3							
5.	14.7							
6.	14.2							
7.	4.9							
8.	14.1							
9.	14.1							
10.	14.2							
11.	14.4							
12.	14.7							
13.	14.4							
14.	14.1							
15.	14.3							
16.	14.2							
17.	14.1							
18.	14.1							
19.	4.9							
20.	14.2							

AGROPYRON SMITHII Study Area Demer Date Nov. 1, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	16.2		.1	5.8			
2.	16.2		.1	4.4			
3.	16.1		.1	1.5			
4.	16.2		.1	4.8			
5.	16.2		.1	10.1			
6.	16.2		.1	2.8			
7.	14.8						
8.	16.2		.2	7.0			
9.	16.2		.1	6.4			
10.	16.2		.1	6.0			
11.	16.2		.2	9.5			
12.	16.1		.1	9.0			
13.	16.2		.1	7.6			
14.	16.2		.2	11.1			
15.	16.2		.1	3.6			
16.	16.2		.1	10.0			
17.	16.3		.1	8.6			
18.	16.1		.1	4.2			
19.	16.2		.1	6.8			
20.	16.1		.1	4.0			

AGROPYRON SMITHII Study Area Farson Date May 25, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	2.7		.1	16.5			3	
2.	3.0		.2	17.0			2	
3.	3.8		.2	17.5			1	
4.	4.0		.2	16.0			2	
5.	3.6		.2	12.3			1	Plant missing (replacement)
6.	4.0		.1	8			1	Plant missing (replacement)
7.	4.1		.2	10.5			1	Plant dead (replacement)
8.	3.3		.2	10.5			1	
9.	4.0		.2	13.5			1	
10.	4.0		.2	17.0			2	
11.	3.5		.2	18.5			1	
12.	3.5		12	15.0			1	Plant missing (replacement)
13.	2.9		.2	25.5			1	
14.	3.5		.2	17.0			1	Plant dead (replaced)
15.	3.5		.2	22			1	
16.	3.1		.2	14.0			2	
17.	3.5		.2	11.0			2	
18.	3.3		.2	14.5			2	
19.	4.3		.2	18.5			1	Plant dead (replaced)
20.	4.1		.2	19.0			2	

AGROPYRON SMITHII Study Area Farson Date June 7, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	3.6		0.1	23			3
2.	3.7		0.3	18			2
3.	3.3		0.3	17			1
4.	4.4		0.3	21			2
5.	3.3		0.3	16			1
6.	4.2		0.3	23			1
7.	4.4		0.3	20			1
8.	3.5		0.3	10			1
9.	4.2		0.2	16			1
10.	3.5		0.3	17			2
11.	4.2		0.2	28			1
12.	4.2		0.3	14			1
13.	4.5		0.3	25			1
14.	4.1		0.3	21			1
15.	4.1		0.2	20			1
16.	3.4		0.2	16			2
17.	3.4		0.2	15			2
18.	3.5		0.3	15			2
19.	4.6		0.3	22			1
20.	4.4		0.3	27			2

AGROPYRON SMITHII Study Area Farson Date June 27, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	4.0		.2	20.1			3
2.	4.3		.2	20.9			2
3.	3.9		.2	18.0			1
4.	4.4	6.3	.2	35.5	11.0	11	2
5.	4.7		.2	21.0			1
6.	4.3	5.9	.2	32.5	6.0	9	1
7.	4.4	5.8	.2	30.9	5.9	11	1
8.	4.0		.2	12.5			1
9.	4.3		.2	16.7			1
10.	3.9	5.6	.2	25.5	12.5	8	2
11.	4.3		.2	29.0			1
12.	4.2		.2	15.1			1
13.	4.3		.2	28.0			1
14.	4.3		.2	20.0			1
15.	4.1	5.6	.2	34.5	10.0	11	1
16.	3.6		.2	7.5			2
17.	4.2	6.3	.2	33.5	15.0	11	2
18.	4.2		.2	19.5			2
19.	4.7		.2	20.0			1
20.	4.4	5.5	.2	30.5	7.0	7	2

AGROPYRON SMITHII Study Area Farson Date July 18, 1978

PLANT NO.	PHENO. STAGE SCORE VEG.	PHENO. STAGE SCORE REPR.	MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
1.	4.0		.2	17			2	Dead relocated to 6'5"
2.	4.6		.3	23			2	
3.	4.6		.3	18			1	
4.	4.7	7.5	.3	33	40	10	2	
5.	4.5		.3	21			1	
6.	4.6		.3	27			1	
7.	4.7	7.7	.3	20	24	9	1	
8.	4.1		.2	13			1	
9.	4.4		.2	17			1	
10.	4.8	9.2	.3	26	22	10	3	
11.	4.6		.3	29			1	
12.	4.2		.2	20			1	
13.	4.3		.2	28			1	
14.	4.7		.2	23			1	
15.	4.5		.2	27			1	
16.	4.1		.2	18			2	
17.	4.7	11.0	.3	22	35		2	
18.	4.5		.3	26			1	
19.	4.8	7.2	.3	36	46		1	
20.	4.7	6.9	.2	28	43		2	

AGROPYRON SMITHII Study Area Farson Date Aug. 16, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	14.3							
2.	14.2							
3.	14.2							
4.	14.3	12.8						
5.	14.2							
6.	14.3							
7.	14.4	12.8						
8.	14.4							
9.	14.3							
10.	14.3	12.8						
11.	14.3							
12.	14.3							
13.	14.6							
14.	14.3							
15.	14.3							
16.	14.3							
17.	14.4							
18.	14.3							
19.	14.3							
20.	14.2	12.7						

AGROPYRON SMITHII Study Area Farson Date Sept. 1, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	14.5							
2.	4.41							
3.	14.6							
4.	14.2	13.6						
5.	14.2							
6.	14.2							
7.	14.3	13.3						
8.	14.4							
9.	14.4							
10.	14.3	13.4						
11.	14.2							
12.	14.2	13.1						
13.	14.2							
14.	14.2							
15.	14.2							
16.	14.2							
17.	14.2	13.3						
18.	14.1							
19.	14.2	13.2						
20.	14.1	13.1						

AGROPYRON SMITHII Study Area Farson Date Nov. 3, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	17						
2.	17						
3.	17						
4.	17						
5.	17						
6.	17						
7.	17						
8.	17						
9.	17						
10.	17						
11.	17						
12.	17						
13.	17						
14.	17						
15.	17						
16.	17						
17.	17						
18.	17						
19.	17						
20.	17						

AGROPYRON SMITHII   Study Area Horse Creek   Date April 29, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	2.4		.2	3.6			1	
2.	2.3		.3	7.6			1	
3.	1.9		.2	5.5			1	
4.	2.1		.1	4.1			1	
5.	1.8		.2	7.1			1	
6.	2.5		.3	12.2			1	
7.	2.5		.4	9.0			2	
8.	3.2		.4	12.6			1	
9.	2.3		.2	10.6			1	Correction.
10.	2.6		.2	10.4			1	
11.	2.5		.4	23.6			1	In sagebrush.
12.	2.6		.3	11.0			1	
13.	3.3		.3	10.0			2	
14.	3.4		.3	11.1			1	
15.	2.3		.2	7.5			1	
16.	3.3		.3	11.0			1	
17.	2.2		.2	10.5			1	
18.	2.4		.2	10.5			1	Correction.
19.	1.3		.2	4			1	
20.	2.4		.4	7.8			1	

AGROPYRON SMITHII   Study Area Horsecreek   Date May 25, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	3.1		.3	19.0			1	
2.	3.1		.2	12.0			1	
3.	3.2		.2	15.0			1	
4.	3.5		.3	17.0			1	
5.	3.1		.2	14.0			1	
6.	3.4		.2	16.5			1	
7.	3.4		.2	13.8			2	
8.	4.0		.2	14.2			1	
9.	4.1		.2	16.2			1	
10.	4.4		.2	18.9			1	
11.	4.5		.3	27.4			1	
12.	4.1		.2	16.8			1	
13.	3.7		.2	16.2			2	
14.	3.5		.2	11.0			1	
15.	4.0		.2	13.3			1	
16.	4.0		.2	14.2			1	
17.	3.0		.2	12.5			1	
18.	3.4		.2	15.7			1	
19.	3.4		.2	13.0			1	
20.	4.0		.2	15.0			1	

AGROPYRON SMITHII Study Area Horse Creek Date June 8, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	3.3		0.3	19			1
2.	3.5		0.3	7			1
3.	3.3		0.3	11			1
4.	4.5		0.3	20			1
5.	3.5		0.2	14			1
6.	4.3		0.3	18			1
7.	3.5		0.1	19			2
8.	4.6		0.3	18			1
9.	4.3		0.4	23			1
10.	4.6		0.4	31			1
11.	4.3		0.4	17			1
12.	4.3		0.3	21			2
13.	4.6		0.4	17			1
14.	4.6		0.4	17			1
15.	4.2		0.3	16			1
16.	4.6		0.4	18			1
17.	3.6		0.3	13			1
18.	4.3		0.3	19			1
19.	3.6		0.3	15			1
20.	4.4		0.4	19			1

Note Heavy cover of Bromus tectorum along transect and throughout lower part of exclosure.

AGROPYRON SMITHII Study Area Horsecreek Date June 30, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	3.6		.2	12.0			1	
2.	3.6		.2	18.2			1	
3.	3.5		.2	11.0			1	
4.	4.3		.2	18.5			1	
5.	4.5		.2	19.5			1	Plant damaged.
6.	4.3		.2	18.1			1	
7.	4.5		.2	24.2			2	
8.	4.3		.2	18.0			1	
9.	4.5		.2	23.5			1	
10.	4.5		.2	24.5			1	
11.	4.7		.2	26.0			1	
12.	4.4		12	18.6			1	
13.	4.8		.2	20.5			3	
14.	4.7		.2	18.3			1	
15.	4.5		.2	17.3			1	
16.	4.7	6.0	.2	20.6			1	
17.	3.8		.2	12.0			1	
18.	4.4		.2	21.1			1	
19.	3.8		.2	15.9			1	
20.	4.3		.2	21.5			1	

AGROPYRON SMITHII　Study Area Horsecreek　Date July 20, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	4.7		.4	21.2			1
2.	4.8		.3	17.5			1
3.	4.9		.3	15			1
4.	4.8		.3	19.2			1
5.	4.9		.3	23.0			1
6.	4.8		.2	16.0			1
7.	4.9		.3	25.5			2
8.	4.7		.4	26.0			1
9.	4.7		.3	20.2			1
10.	4.8		.2	23.6			1
11.	4.9		.3	32.3			1
12.	4.8		.2	18.5			1
13.	4.8		.3	27.0			3
14.	4.8		.2	15.0			1
15.	4.8		.3	16.0			1
16.	4.8		.3	32.0			1
17.	14.0						1
18.	4.9		.2	19.2			1
19.	4.8	10.3	.3	20.0	41.5		1
20.	4.7	10.1	.2	24.0	40.0		1

AGROPYRON SMITHII Study Area Horse creek Date Aug. 10, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	14.1		.3	20			2	
2.	14.2		14	23			2	
3.	14.3		.2	11			1	Grazed
4.	14.3		.1	10			1	
5.	14.3		.4	30			2	
6.	4.9		.3	18			2	
7.	14.3		.4	26			1	
8.	14.2		.3	14			1	
9.	4.9		.4	30			1	Grazed
10.	14.2		.3	26			4	
11.	14.3		.3	33			1	
12.	14.1		.3	19			1	
13.	14.2		.3	26			2	
14.	14.3		.3	14			1	Grazed
15.	14.3		.3	16			2	
16.	14.2		.2	4			1	Grazed
17.	14.4		.3	12			1	
18.	14.1		.3	21			1	
19.	4.9		.3	16			1	
20.	14.1	10.2	.3	22	41	9	1	

AGROPYRON SMITHII Study Area Horse Creek Date Sept. 3, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	14.1											
2.	14.2											
3.	14.3											
4.	14.3											
5.	14.3											
6.	14.1											Eaten.
7.	14.3											
8.	14.2											
9.	14.1											Top 1" of most all plants
10.	14.0											yellow or dired and brown.
11.	14.3											No apparent additional
12.	14.1											growth in height.
13.	14.2											
14.	14.3											
15.	14.3											
16.	14.2											
17.	14.4											
18.	14.0											
19.	14.3											
20.	14.1	13.3										

AGROPYRON SMITHII Study Area Horse creek Date Sept. 24, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	14.3						
2.	14.3						
3.	14.5						
4.	16.2						
5.	16.3						
6.	14.3						
7.	14.6						
8.	16.2						
9.	16.1						
10.	14.2						
11.	14.3						
12.	14.3						
13.	16.1						
14.	14.3						
15.	14.4						
16.	14.4						
17.	16.2						
18.	16.2						
19.	16.4						
20.	16.4						

AGROPYRON SMITHII Study Area Mesa Antelope Date May 23, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	3.3		.2	16.2			1	
2.	3.1		.2	11.5			2	
3.	3.0		.2	16.0			1	
4.	3.2		.2	12.6			1	
5.	3.7		.2	10.5			1	
6.	3.2		.1	9.9			1	
7.	3.2		.2	10.0			2	
8.	3.0		.2	14.5			1	
9.	4.0		.2	13.5			1	
10.	3.2		.1	7.3			1	
11.	3.3		.1	9.1			1	
12.	3.1		.1	10.0			2	Plant missing (replaced)
13.	2.9		.1	9.2			1	
14.	3.3		.2	13.0			1	
15.	3.3		.2	14.2			1	
16.	3.2		.2	15.5			2	
17.	3.3		.2	14.5			1	
18.	3.1		.1	9.0			1	
19.	2.8		.1	10.5			1	
20.	3.1		.1	7.6			2	

AGROPYRON SMITHII Study Area Mesa Antelope Date June 6, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	3.7		0.2	16			1
2.	4.2		0.1	14			2
3.	3.6		0.1	13			1
4.	3.6		0.1	15			1
5.	3.5		0.1	13			1
6.	3.6		0.1	10			1
7.	4.2		0.1	11			2
8.	3.0		0.1	6			1
9.	4.1		0.3	6			1
10.	3.1		0.1	8			1
11.	3.1		0.1	11			1
12.	3.1		0.2	14			2
13.	3.4		0.3	7			1
14.	3.4		0.2	17			1
15.	3.4		0.2	19			1
16.	3.6		0.2	14			2
17.	4.3		0.3	17			1
18.	3.3		0.1	10			1
19.	3.0		0.1	11			1
20.	3.5		0.1	7			2

AGROPYRON SMITHII Study Area Mesa Antelope Date June 27, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	3.6		.2	19.2			1
2.	4.1		.2	15.2			2
3.	3.5		.1	12.5			1
4.	3.7		.1	14.0			1
5.	3.5		.1	13.5			1
6.	3.5		.1	10.5			1
7.	4.5		.1	11.0			2
8.	3.6		.2	13.2			1
9.	4.4		.2	11.8			1
10.	3.4		.1	8.2			1
11.	3.4		.1	11.0			1
12.	3.5		.1	16.0			2
13.	3.6		.2	19.0			1
14.	3.5		.1	13.2			1
15.	3.6		.1	18.0			1
16.	3.5		.1	19.0			2
17.	3.6		.1	19.5			1
18.	3.3		.1	9.5			1
19.	3.2		.1	12.0			1
20.	3.9		.1	9.1			2

AGROPYRON SMITHII Study Area Mesa Antelope Date July 18, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	3.7		0.2	20			2	
2.	4.2		0.2	17			2	
3.	3.4		0.1	12			1	
4.	3.7		0.1	15			1	
5.	3.6		0.1	13			1	
6.	3.6		0.1	10			1	
7.	4.4		0.2	19			1	
8.	3.6		0.1	7			1	
9.	4.4		0.3	14			3	
10.	3.6		0.1	9			1	
11.	3.7		0.1	11			1	
12.	4.4		0.2	18			1	
13.	3.7		0.3	19			2	
14.	4.2		0.2	17			1	
15.	4.3		0.2	18			1	
16.	3.7		0.2	10			2	Dying apparently.
17.	3.8		0.2	17			1	
18.	3.7		0.1	9			1	
19.	3.7		0.2	4			1	Grazed off.
20.	3.6		0.2	9			2	

AGROPYRON SMITHII Study Area Mesa Antelope Date Aug. 8, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	14.2			19.5				
2.	14.3			15.4				
3.	14.4			12.2				
4.	14.2			14.4				
5.	14.2			13.6				
6.	14.4			10.6				
7.	14.3			20				
8.	14.3			20.8				
9.	14.1			13.8				
10.	14.0			8.5				
11.	14.1			10.6				
12.	14.2			16.0				
13.	14.1			18.2				
14.	14.1			17.0				
15.	14.1			18.2				
16.	14.0			15.5				
17.	14.4			16.0				
18.	14.1			20.0				
19.	14.1			18.0				
20.	14.3			7.5				

AGROPYRON SMITHII Study Area Mesa Antelope Date Aug. 30, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	14.5							
2.	14.5							
3.	14.7							
4.	14.5							
5.	14.7							
6.	14.5							
7.	14.4							
8.	14.3							
9.	14.2							
10.	14.3							
11.	14.7							
12.	14.5							
13.	14.5							
14.	14.7							
15.	14.5							
16.	14.6							
17.	14.7							
18.	14.5							
19.	14.2							
20.	14.4							

AGROPYRON SMITHII Study Area Mesa Antelope Date Nov. 4, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	17							
2.	17							
3.	17							
4.	17							
5.	17							
6.	17							
7.	17							
8.	17							
9.	17							
10.	17							
11.	17							
12.	17							
13.	17							
14.	17							
15.	17							
16.	17							
17.	17							
18.	17							
19.	17							
20.	17							

AGROPYRON SMITHII Study Area Owl Draw Date 26 May 78

PLANT NO.	PHENO. STAGE SCORE VEG.	PHENO. STAGE SCORE REPR.	MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKELETS/ CULM	NOS. OF VEG. PLANTS	
1.	2.7		.2	10.5			1	
2.	2.3		.1	6.5			1	
3.	2.1		.1	8.0			1	
4.	3.1		.2	15.0			1	
5.	3.0		.1	10.8			1	
6.	3.2		.2	14.0			1	
7.	3.0		.2	10.5			1	
8.	3.0		.2	15.0			1	
9.	2.9		.2	10.5			1	
10.	3.1		.2	16.0			1	
11.	3.2		.2	11.0			1	
12.	3.4		.2	18.5			1	
13.	2.9		.1	14.0			1	
14.	4.0		.2	15.0			1	
15.	2.3		.1	12.5			1	
16.	2.8		.1	10.1			1	
17.	3.1		.1	11.0			1	
18.	2.7		.2	9.0			1	
19.	3.1		.2	13.5			1	plant dead (replaced)
20.	3.0		.2	14.1			2	

AGROPYRON SMITHII Study Area Owl Draw Date June 9, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	4.0		.2	11.1				
2.	4.2		.2	16.2				
3.	3.9		.1	17.0				
4.	3.9		.2	19.5				
5.	4.1		.2	14.0				
6.	3.9		.2	19.2				
7.	3.9		.1	13.0				
8.	4.1		.2	18.1				
9.	4.4		.3	22.0				
10.	3.9		.2	17.5				
11.	3.8		.2	13.0				
12.	4.1		.2	16.3				
13.	3.9		.2	17.0				
14.	4.0		.2	17.0				
15.	3.2		.2	13.1				
16.	3.1		.2	11.5				
17.	3.7		.1	15.0				
18.	4.2		.3	19.0				
19.	4.1		.3	18.0				
20.	3.9		.3	17.5				

AGROPYRON SMITHII   Study Area Owl Draw   Date July 1, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	4.2		.3	16.3			
2.	4.2		.3	16.5			
3.	3.9		.2	20.1			
4.	4.2		.3	25.7			
5.	4.1		.3	23.0			
6.	4.2		.2	19.5			
7.	4.1		.2	16.6			
8.	4.4		.2	15.0			
9.	3.9		.2	19.8			
10.	4.0		.3	29.3			
11.	4.1		.2	14.0			
12.	4.2		.3	21.5			
13.	4.2		.2	16.2			
14.	4.2		.2	14.0			
15.	3.9		.2	12.6			
16.	3.8		.2	14.5			
17.	3.9		.2	23.0			
18.	4.5		.3	20.3			
19.	3.9		.2	18.5			
20.	3.9		.2	21.0			

AGROPYRON SMITHII Study Area Owl Draw Date July 24, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	4.4		.2	17.0			1	(Plants appears stunted, some culms
2.	4.3		.2	16.5			1	or leaf appear to be last years'
3.	3.9		.1	24.5			1	but could have been early spring
4.	4.2		.1	26.2			1	and have dried).
5.	5.0		.3	23.5			2	
6.	4.2		.2	19.5			1	
7.	4.3		.2	16.5			2	
8.	5.2		.3	31.0			2	
9.	3.9		.2	34.0			3	
10.	4.2		.2	29.5			1	
11.	4.1		.2	14.2			1	
12.	4.4		.2	22.0			1	
13.	4.4		.2	17.1			1	
14.	4.2		.2	14.8			2	
15.	3.9		.2	14.0			2	
16.	3.8		.2	18.0			1	
17.	3.9		.2	23.1			1	
18.	4.5		.2	21.0			3	
19.	3.9		.2	18.4			1	
20.	4.0		.1	21.5			1	

AGROPYRON SMITHII Study Area Owl Draw Date August 11, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	4.7		.3	17.0			1
2.	4.8		.2	16.5			1
3.	14.1						1
4.	14.1						1
5.	4.8		.3	23.5			2
6.	4.8		.3	22.4			1
7.	4.8		.3	16.5			2
8.	14.2						2
9.	14.0						3
10.	14.0						1
11.	4.8		.2	14.3			1
12.	4.8		.3	18.0			1
13.	4.7		.3	17.0			1
14.	4.8		.2	14.8			2
15.	4.8		.2	14.8			2
16.	4.8		.2	18.0			1
17.	4.8		.2	24.0			1
18.	4.7		.4	21.0			3
19.	4.9		.2	18.5			1
20.	4.7		.3	21.5			1

AGROPYRON SMITHII

Study Area Owl Draw

Date September 4, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	14.2							(Only tips of plant brown)
2.	14.1							
3.	4.9							
4.	14.2							
5.	14.1							
6.	14.1							
7.	14.1							
8.	14.1							
9.	14.0							
10.	14.2							
11.	14.1							
12.	14.1							
13.	14.2							
14.	14.2							
15.	14.1							
16.	14.2							
17.	4.9							
18.	14.1							
19.	14.1							
20.	14.0							

AGROPYRON SMITHII Study Area Owl Draw Date September 29, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	14.7						
2.	14.9						
3.	14.7						
4.	14.7						
5.	14.7						
6.	14.6						
7.	14.6						
8.	14.9						
9.	14.4						
10.	14.5						
11.	14.9						
12.	14.9						
13.	14.7						
14.	14.8						
15.	14.9						
16.	14.7						
17.	14.7						
18.	14.9						
19.	14.6						
20.	14.7						

AGROPYRON SMITHII Study Area Red Wash #2 Date April 29, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	2.3		.1	11.6			
2.	2.3		.1	13.1			
3.	1.2		0.5	4.1			
4.	2.3		.1	11.0			
5.	2.2		.1	6.5			
6.	2.3		.1	12.0			
7.	2.3		.1	7.1			
8.	2.2		.1	7.0			
9.	2.2		.1	8.5			
10.	17.0						
11.	2.4		.2	14.0			
12.	2.1		.1	9.1			
13.	2.3		.1	8.1			
14.	2.2		.1	6.8			
15.	2.1		.1	4.8			
16.	2.1		.1	8.0			
17.	2.3		.1	10.3			
18.	2.3		.1	9.8			
19.	17.0						
20.	2.2		.1	5.8			

AGROPYRON SMITHII Study Area Red Wash #2 Date May 22, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	3.2		0.2	19.1			7
2.	2.8		0.2	14.8			1
3.	2.7		0.2	16.0			5
4.	3.3		0.2	14.5			1
5.	3.2		0.2	13.9			1
6.	3.1		0.2	11.9			1
7.	2.9		0.2	12.9			1
8.	3.1		0.2	17.0			7
9.	2.8		0.2	11.8			1
10.	3.3		0.2	14.1			2
11.	3.3		0.2	20.0			1
12.	3.1		0.2	10.0			1
13.	2.7		0.2	10.5			3
14.	3.1		0.2	9.5			2
15.	3.0		0.1	6.0			2
16.	3.0		0.2	10.10			1
17.	3.3		0.2	14.0			1
18.	3.0		0.2	14.0			2
19.	2.8		0.1	13.0			5
20.	3.0		0.1	8.0			2

AGROPYRON SMITHII Study Area Red Wash #2 Date June 5, 1978

PLANT NO.	PHENO. STAGE SCORE VEG.	PHENO. STAGE SCORE REPR.	MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
1.	3.8		0.2	19.1				
2.	3.8		0.2	14.8				
3.	2.8		0.2	16.0				
4.	4.8		0.2	14.5				
5.	3.2		0.2	13.9				
6.	3.8		0.2	11.9				
7.	3.6		0.2	12.9				
8.	3.5		0.2	17.0				
9.	2.4		0.2	11.8				
10.	4.3		0.2	14.1				Plant Dead.
11.	2.1		0.2	20.0				
12.	2.6		0.2	10.0				
13.	3.2		0.2	10.5				
14.	3.4		0.2	9.5				
15.	3.5		0.1	6.0				
16.	3.4		0.2	10.10				
17.	4.4		0.2	14.0				
18.	2.5		0.2	14.0				
19.	3.4		0.1	13.0				
20.	3.4		0.1	8.0				

AGRORPYRON SMITHII Study Area Red Wash #2 Date June 26, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	4.5		0.2	18				
2.	3.9		0.2	17				
3.	4.5		0.2	19				
4.	4.6		0.2	20				
5.	3.7		0.2	10				
6.	4.6		0.2	17				
7.	4.3		0.2	17				
8.	4.4		0.2	15				
9.	3.6		0.1	12				
10.	3.8		0.3	19				
11.	3.3		0.2	15				
12.	3.4		0.1	11				
13.	4.1		0.2	10				
14.	4.3		0.2	16				
15.	4.4		0.1	8				
16.	3.4		0.1	11				
17.	4.1		0.1	12				
18.	4.3		0.2	14				
19.	4.3		0.2	15				Plant dead.
20.	3.6		0.2	8				

AGROPYRON SMITHII Study Area Red Wash #2 Date July 17, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	4.6		0.2	18			
2.	3.9		0.2	16			
3.	4.6		0.2	19			
4.	4.6		0.2	18			
5.	3.8		0.1	10			
6.	4.8		0.2	20			
7.	4.5		0.2	15			
8.	4.8		0.1	13			
9.	3.8		0.1	18			
10.	4.5		0.2	18			
11.	3.3		0.1	18			
12.	3.4		0.1	12			
13.	4.4		0.1	6			
14.	4.5		0.2	11			
15.	4.6		0.1	9			
16.	4.2		0.1	11			
17.	4.3		0.1	18			
18.	4.3		0.2	13			
19.	4.4		0.2	16			
20.	3.8		0.1	7			

AGROPYRON SMITHII Study Area Red Wash #2 Date Aug. 4, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	14.1		.2	21			5
2.	4.1		.2	17			1
3.	14.4		.2	19			3
4.	14.1		.3	20			1
5.	14.1		.2	10			2
6.	14.2		.2	20			3
7.	14.1		.2	15			1
8.	14.2		.2	16			2
9.	14.3		.2	14			1
10.	14.2		.3	18			3
11.	14.1		.2	28			1
12.	14.2		.2	12			1
13.	14.1		.2	21			1
14.	14.1		.2	11			1
15.	14.0		.2	8			2
16.	14.3		.1	11			1
17.	14.4		.2	13			1
18.	14.2		.2	15			2
19.	14.2		.2	17			1
20.	14.7		.1	8			2

AGROPYRON SMITHII Study Area Red Wash #2 Date Aug. 28, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	14.2							
2.	14.3							
3.	14.6							
4.	14.4							
5.	14.3							
6.	14.2							
7.	14.2							
8.	14.3							
9.	14.7							
10.	14.2							
11.	14.2							
12.	14.7							
13.	14.3							
14.	14.4							
15.	14.1							
16.	14.4							
17.	14.4							
18.	14.7							
19.	14.2							
20.	14.7							

AGROPYRON SMITHII Study Area Red Wash #2 Date Nov. 6, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKELETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	17	17					
2.	17	17					
3.	17	17					
4.	17	17					
5.	17	17					
6.	17	17					
7.	17	17					
8.	17	17					
9.	17	17					
10.	17	17					
11.	17	17					
12.	17	17					
13.	17	17					
14.	17	17					
15.	17	17					
16.	17	17					
17.	17	17					
18.	17	17					
19.	17	17					
20.	17	17					

AGROPYRON SMITHII Study Area Shoshoni Ant #7 Date May 24, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKELETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	3.1		.1	10.0			1	
2.	2.9		.1	11.3			1	Plant dead (replaced)
3.	3.1		.2	16.2			1	
4.	3.1		.1	11.2			1	
5.	3.2		.1	18.5			1	
6.	2.9		.1	15.5			1	
7.	3.1		.1	11.0			1	
8.	2.9		.1	10.5			1	
9.	3.1		.1	13			1	Plant damaged (replaced)
10.	3.1		.1	13			1	
11.	4.0		.2	14.0			1	Plant dead (replaced)
12.	3.1		.1	12.8			2	Plant dead (replaced)
13.	3.2		.1	14.0			1	
14.	3.1		.1	11.2			1	Plant dead (replaced)
15.	3.1		.1	10.5			1	Plant dead (replaced)
16.	3.1		.1	11.5			1	
17.	2.8		.1	8.0			1	
18.	3.0		.1	12.0			2	
19.	3.1		.1	10.2			2	
20.	3.0		.1	8.1			1	

AGROPYRON SMITHII Study Area Shoshoni #7 Date June 9, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	3.3		.3	14				
2.	3.4		.2	12				
3.	3.4		.4	20				
4.	4.3		.3	16				
5.	4.7		.3	27				
6.	3.4		.3	19				
7.	4.6		.4	14				
8.	4.3		.2	12				
9.	4.1		.2	15				
10.	4.3		.2	13				
11.	3.3		.3	14				
12.	4.1		.3	13				
13.	3.6		.3	18				
14.	3.3		.2	12				
15.	3.3		.1	12				
16.	4.1		.3	12				
17.	3.3		.1	8				
18.	4.4		.2	14				
19.	3.5		.2	17				
20.	3.4		.2	10				

AGROPYRON SMITHII Study Area Shoshoni #7 Date June 28, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	4.0		.2	15.0				
2.	3.9		.1	8.0				
3.	3.5		.2	17.0				
4.	4.7		.1	5.0				Plant partially eaten.
5.	4.9		.2	27.5				
6.	3.9		.2	18.0				
7.	4.5		.2	10.0				
8.	4.5		.2	14.9				
9.	4.5		.2	15.0				
10.	4.5		.2	13.5				
11.	3.9		.2	10.0				
12.	4.3		.2	15.2				
13.	3.9		.2	18.2				
14.	3.7		.2	12.5				
15.	3.5		.1	12.1				
16.	4.3		.2	10.0				Plant partially damaged.
17.	2.9		.1	8.0				Plant damaged.
18.	4.5		.2	13.0				
19.	3.8		.2	16.0				
20.	3.9		.1	9.3				

AGROPYRON SMITHII Study Area Shoshoni #7 Date July 19, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.								Cannot determine - grazed
2.								Cannot determine - grazed
3.	3.6		.2	13			2	Cannot determine - grazed
4.								Cannot determine - grazed
5.	4.8		.3	26			1	
6.	4.6		.3	19			1	
7.	4.9		.3	11				
8.	4.6		.2	16			1	
9.	4.6		.3	15			1	
10.	4.5		.3	13			1	
11.	4.6		.2	14			1	
12.	4.5		.3	17			2	
13.	4.4		.3	19			1	
14.	4.3		.2	13			1	
15.	4.3		.2	5*			1	* Severely grazed
16.	4.5		.3	8*			1	* Severely grazed
17.							1	Cannot determine grazed
18.	4.4		.3	13			1	
19.	4.3		.2	17			2	
20.							1	Grazed - cannot determine

AGROPYRON SMITHII Study Area Shoshoni #7 Date Aug. 9, 1978

PLANT NO.	PHENO. STAGE SCORE VEG.	PHENO. STAGE SCORE REPR.	MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
1.	14.9							Eaten
2.	4.9							Eaten.
3.	4.7							Eaten
4.	4.7							Eaten
5.	4.9			26				
6.	4.8			18				
7.	14.4							
8.	4.8			10.5				
9.	4.7							Eaten
10.	14.0							Eaten
11.	4.9			11.8				
12.	14.6							Eaten
13.	4.7			18.6				
14.	4.9			13.0				
15.	4.7							Eaten
16.	4.7							Eaten
17.	14.6							Eaten
18.	4.8			13.2				
19.	14.0							
20.	4.8							Eaten

AGROPYRON SMITHII   Study Area Shoshoni #7   Date Sept. 1, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKELETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	14.9							Destroyed
2.	14.4							Eaten
3.	14.6							Eaten
4.	14.6							Eaten
5.	14.3							
6.	14.2							
7.	14.5							
8.	14.6							
9.	14.7							
10.	14.7							
11.	14.3							
12.	14.6							Eaten
13.	14.2							
14.	14.3							
15.	14.6							Eaten
16.	14.6							Eaten
17.	14.7							
18.	14.3							
19.	14.2							
20.	14.3							

AGROPYRON SMITHII Study Area Shoshoni #7 Date Sept. 22, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.								Grazed to ground
2.								Grazed to ground
3.								Grazed to ground
4.								Grazed to ground
5.	14.3							
6.	14.3							
7.	14.8							
8.	14.6							
9.	14.7							
10.	14.7							
11.	14.5							
12.	14.7							
13.	14.4							
14.	14.6							
15.	14.6							
16.								Grazed to ground
17.								Grazed to ground
18.	14.3							
19.	14.2							
20.	14.7							

AGROPYRON SMITHII Study Area Sweetwater Date May 24, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	3.3		.2	15.2			1	
2.	3.4		.2	10.7			1	
3.	4.0		.1	9.5			1	
4.	2.9		.1	14.6			1	
5.	2.7		.1	7			1	
6.	2.7		.1	10.2			1	
7.	3.1		.1	8.9			1	
8.	3.5		.2	15.5			2	
9.	3.4		.2	12.3			2	
10.	2.9		.2	12.3			2	
11.	3.1		.2	13.5			2	
12.	3.3		.1	15.2			1	
13.	3.3		.1	10.5			1	
14.	2.8		.1	7.5			1	
15.	2.8		.1	12.5			2	
16.	3.3		.1	8.5			2	
17.	2.9		.1	17.5			1	
18.	2.8		.1	14.0			2	
19.	3.0		.1	6.0			1	
20.	3.3		.1	12.0			2	

AGROPYRON SMITHII Study Area Sweetwater Date June 7, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	4.1		0.3	19				
2.	4.2		0.3	14				
3.	4.2		0.1	8				
4.	2.4		0.1	18				
5.	3.2		0.1	7				
6.	3.4		0.1	9				Had been grazed.
7.	3.6		0.1	9				
8.	4.4		0.2	11				
9.	4.4		0.2	14				
10.	3.6		0.2	14				
11.	3.6		0.2	15				
12.	3.4		0.2	10				
13.	3.4		0.1	10				
14.	3.4		0.1	8				
15.	3.3		0.2	10				
16.	3.1		0.2	11				
17.	3.4		0.2	19				
18.	3.3		0.2	14				
19.	4.6		0.2	6				
20.	3.4		0.2	14				

AGROPYRON SMITHII Study Area Sweetwater Date June 30, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	4.5		0.3	19				
2.	4.5		0.3	14				
3.	4.3		0.2	9				
4.	4.2		0.3	23				No plant, new plant at 21'11" R 4'11"
5.	4.3		0.3	21				No plant, new plant at 26'5" L 1/2"
6.	4.3		0.3	26				Grazed by small mammal
7.	4.3		0.1	9				
8.	4.5		0.2	15				
9.	4.3		0.2	13				
10.	4.2		0.2	15				
11.	4.2		0.2	16				
12.	3.4		0.2	12				
13.	3.6		0.2	13				
14.	4.0		0.2	12				
15.	3.2		0.2	14				
16.	3.1		0.2	10				Dead-new plant 80'5" 0'0"
17.	3.6		0.2	21				
18.	3.5		0.2	17				
19.	4.2		0.2	14				
20.	3.4		0.2	13				

AGROPYRON SMITHII Study Area Sweetwater Date July 19, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	4.5		.2	15			1	
2.	4.7		.3	17			2	
3.	4.3		.2	9			1	
4.	4.6		.3	22			2	
5.	4.6		.2	21			3	
6.	4.5		.2	14			1	Grazed
7.	4.4		.2	10			1	
8.	4.6		.2	15			2	
9.	4.5		.2	14			1	
10.	14.3		.2	18			1	
11.	4.3		.2	16			2	
12.	3.4		.2	13			1	
13.	3.7		.5	17			2	
14.	4.4		.3	15			1	
15.	3.2		.2	8			1	
16.	3.5		.2	8			1	
17.	4.6		.2	24			1	
18.	4.5		.2	8			4	
19.	4.4		.2	14			2	
20.	4.2		.2	21			3	

AGROPYRON SMITHII Study Area Sweetwater Date Aug. 7, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKELETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	14.2			19.2			
2.	14.1			19.0			
3.	14.2			5.6			
4.	14.0			22.7			
5.	4.4			21.6			
6.	14.0			27.3			
7.	14.6			8.7			
8.	14.6			11.5			
9.	14.6			14.1			
10.	14.2			11.0			
11.	14.3			17.0			
12.	14.2			22.4			
13.	14.1			12.4			
14.	14.5			10.0			
15.	14.1			9.8			
16.	14.3			10.2			
17.	14.2			23.5			
18.	14.2			17.5			
19.	14.1			15.5			
20.	14.2			12.2			

AGROPYRON SMITHII Study Area Sweetwater Date Sept. 1, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	14.3							
2.	14.4							
3.	14.8							
4.	14.4							
5.	14.4							
6.	14.2							
7.	14.3							
8.	14.3							
9.	14.3							
10.	14.3							
11.	14.3							
12.	14.5							
13.	14.3							
14.	14.3							
15.	14.6							
16.	14.5							
17.	14.3							
18.	14.3							
19.	14.4							
20.	14.4							

AGROPYRON SMITHII Study Area Sweetwater Date Sept. 22, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	14.6						
2.	14.8						
3.	16.3						
4.	16.1						
5.	14.6						
6.	14.7						
7.	14.9						
8.	14.7						
9.	14.6						
10.	16.2						
11.	16.2						
12.	14.8						
13.	16.2						
14.	14.9						
15.	14.9						
16.	16.1						
17.	16.4						
18.	16.5						
19.	16.4						
20.	16.3						

AGROPYRON SMITHII Study Area Upper Gov't. Draw Date May 24, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	2.9		0.1	13			3	
2.	3.1		0.1	15.5			2	
3.	2.9		0.1	19.5			1	
4.	3.3		0.1	18.5			2	
5.	3.1		0.1	7.5			2	
6.	2.9		0.1	11.5			1	
7.	3.3		0.1	15			1	
8.	2.9		0.1	19.2			1	
9.	2.9		0.1	13.1			1	
10.	3.1		0.1	14			1	
11.	3.1		0.1	13.5			2	
12.	3.1		0.1	14			1	
13.	3.2		0.1	13			1	
14.	3.0		0.1	12.2			1	
15.	3.0		0.1	12			1	Plant damaged
16.	3.1		0.1	13.5			1	
17.	2.9		0.1	19			1	
18.	3.3		0.2	17.5			1	
19.	3.3		0.2	22			2	
20.	2.9		0.1	19			1	

AGROPYRON SMITHII

Study Area Upper Gov't. Draw

Date June 7, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	3.4		0.2	17				
2.	3.5		0.2	14				
3.	3.6		0.2	19				Broken
4.	3.5		0.2	17				
5.	3.2		0.2	12				
6.	3.3		0.2	18				
7.	3.4		0.2	19				
8.	3.8		0.2	13				
9.	3.4		0.1	9				
10.	3.4		0.3	17				
11.	3.4		0.3	21				
12.	3.3		0.2	16				
13.	3.5		0.3	11				
14.	3.5		0.2	22				
15.	3.5		0.2	16				
16.	3.3		0.1	14				
17.	3.5		0.2	19				
18.	3.6		0.3	16				
19.	3.5		0.3	22				
20.	2.5		0.2	17				

AGROPYRON SMITHII Study Area Upper Gov't. Draw Date June 27, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	3.6		0.2	17				
2.	3.5		0.1	17				
3.	3.8		0.2	23				
4.	3.7		0.2	24				
5.	3.7		0.2	17				
6.	3.5		0.2	18				
7.	3.6		0.2	19				
8.	3.4		0.2	14				
9.	3.6		0.1	10				
10.	3.6		0.2	18.5				
11.	3.7		0.2	24				
12.	3.3		0.1	17				
13.	3.7		0.2	16				
14.	3.7		0.2	28.3				
15.	3.6		0.2	19.5				
16.	3.5		0.2	20.5				
17.	3.8		0.2	26				
18.	3.7		0.2	26.5				
19.	3.4		0.2	12.5				
20.	3.5		0.1	19.5				

AGROPYRON SMITHII Study Area Upper Gov't. Draw Date July 19, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	4.5		0.2	20			1	
2.	4.4		0.2	17			3	
3.	4.4		0.2	23			1	
4.	4.3		0.2	17			4	
5.	4.4		0.2	17			2	
6.	4.5		0.3	21			3	
7.	4.4		0.2	20			1	
8.	4.3		0.2	14			1	
9.	4.3		0.2	19			2	
10.	4.3		0.2	17			1	
11.	4.3		0.2	21			2	
12.	4.2		0.2	17			1	
13.	4.3		0.3	11			1	
14.	4.3		0.3	12			1	
15.	4.2		0.2	15			1	
16.	4.3		0.2	14			1	
17.	3.2		0.1	7			1	
18.	3.4		0.2	25			1	Plant is dead
19.	4.5		0.3	24			1	Severely bent over
20.	4.5		0.3	19			1	

AGROPYRON SMITHII Study Area Upper Gov't. Draw Date Aug. 9, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE- LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	14.3						
2.	4.8			15.2			
3.	14.1						
4.	14.2						
5.	4.8			17			
6.	14.1						
7.	14.2						
8.	14.2						
9.	14.0						
10.	14.1						
11.	14.6						
12.	14.5						
13.	14.1						
14.	14.0						
15.	14.3						
16.	14.3						
17.	14.1						
18.	14.3						
19.	14.1						
20.	14.3						

AGROPYRON SMITHII   Study Area Upper Gov't. Draw   Date Sept. 1, 1978

PLANT NO.	PHENO. STAGE SCORE VEG.	REPR.	MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
1.	14.1							
2.	14.6							
3.	14.4							Condition very dry
4.	14.5							All plants in mid 14 stage
5.	14.6							
6.	14.4							
7.	14.2							
8.	14.7							
9.	14.4							
10.	14.4							
11.	14.4							
12.	14.4							
13.	14.6							
14.	14.4							
15.	14.6	15.3						
16.	14.4							
17.	14.5							
18.	14.4							
19.	14.6							
20.	14.7							

AGROPYRON SMITHII Study Area Upper Gov't. Draw Date Sept. 23, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS	
	VEG.	REPR.						
1.	14.9							No green,
2.	14.8							
3.	14.8							
4.	16.2							
5.	16.1							
6.	14.9							
7.	16.3							
8.	14.8							
9.	14.8							
10.	14.8							
11.	14.9							
12.	14.9							
13.	14.8							
14.	14.9							
15.	16.2							
16.	14.9							
17.	16.2							
18.	14.9							
19.	14.8							
20.	14.9							

AGROPYRON SPICATUM Study Area Cedar Mountain Date April 29, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	2.1					.1	9.5					
2.	2.2					.1	8.9					
3.	2.2					.2	8					
4.	1.5					.1	8.5					
5.	2.5					.2	15.6					
6.	2.5					.2	15					
7.	2.3					.2	10					
8.	2.3					.2	11.7					
9.	2.1					.1	8.2					
10.	2.1					.1	8					
11.	2.2					.2	11					
12.	1.8					.1	6					
13.	2.1					.1	7					
14.	2.2					.2	8					
15.	2.5					.2	14					
16.	2.2					.1	14.5					
17.	2.1					.2	11.5					
18.	2.2					.2	10					
19.	2.1					.1	11.2					
20.	2.2					.2	11					

AGROPYRON SPICATUM Study Area Cedar Mountain Date May 22, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	3.2		24	12		0.2	9.2				15	
2.	3.2		37	10		0.2	16.5				60	
3.	3.0					0.1	8.1				5	
4.	3.1				19	0.2	12.0				15	
5.	3.2				18	0.2	21.0				12	
6.	3.1		30	24		0.2	15.0				30	
7.	3.1		35	20		0.2	10.0				100	
8.	3.2				35	0.2	17.5				100	
9.	3.2					0.1	10.5				7	
10.	2.9					0.1	11				5	
11.	3.3				11	0.2	21				20	
12.	3.0					0.1	5				6	
13.	4.0					0.2	11.7				4	
14.	3.2					0.3	13.0				6	
15.	2.9				11	0.2	18.0				10	
16.	3.2		31	17		0.2	20.0				100	
17.	3.0		40	12		0.2	12.0				80	
18.	3.1		37	17		0.2	18.3				50	
19.	4.0				30	0.3	16.9				20	
20.	4.0		33	25		0.3	24.4				75	

AGROPYRON SPICATUM Study Area Cedar Mountain Date June 6, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	4.5		24	12		0.2	9.2				15	
2.	4.4		37	10		0.2	16.5				60	
3.	4.1					0.1	8.1				5	
4.	4.2				19	0.2	12.0				15	
5.	4.1				18	0.2	21.0				12	
6.	4.1		30	24		0.2	15.0				30	
7.	4.3		35	20		0.2	10.0				100	
8.	3.3				35	0.2	17.5				100	
9.	4.4					0.1	10.5				7	
10.	3.4					0.1	11				5	
11.	3.4				11	0.2	21				20	
12.	4.2					0.1	5				6	
13.	4.3					0.2	11.7				4	
14.	3.5					0.3	13.0				6	
15.	4.2				11	0.2	18.0				10	
16.	4.4		31	17		0.2	20.0				100	
17.	4.4		40	12		0.2	12.0				80	
18.	4.5		37	17		0.2	18.3				50	
19.	4.3				30	0.3	16.9				20	
20.	1.4		33	25		0.3	24.4				75	

AGROPYRON SPICATUM Study Area Cedar Mountain Date 26 June 1978

PLANT NO.	PHENO. STAGE SCORE VEG	PHENO. STAGE SCORE REPR	CLUMP LGTH cm	CLUMP WIDTH cm	CLUMP DIAM cm	MAX LEAF WIDTH cm	MAX LEAF HGHT cm	MAX SPIKE HGHT cm	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
1.	4.6					0.3	12					
2.	4.6	6.6				0.2	19					
3.	4.3	6.5				0.2	16					
4.	4.5					0.3	18					
5.	4.2	6.2				0.2	21					
6.	4.2					0.2	15					
7.	4.4	6.5				0.3	24					
8.	4.2					0.2	18.0					
9.	4.5					0.2	17					
10.	4.5	6.1				0.3	20					
11.	4.6	6.6				0.3	35					
12.	4.2					0.2	10					
13.	4.6					0.3	12					
14.	4.8	6.7				0.3	31					
15.	4.6	6.6				0.2	11					
16.	4.6	6.5				0.2	36					
17.	4.7					0.3	13					
18.	4.7	6.0				0.2	19.1					
19.	4.4					0.2	22					
20.	4.8	6.6				0.3	27					

AGROPYRON SPICATUM Study Area Cedar Mountain Date July 17, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	4.7		30	11		0.2	16				10	
2.	4.7	11.2	38	25		0.3	19.0	35	7	3	30	
3.	4.6	11.7	40	23		0.3	32	43	6	8	20	
4.	4.7				24	0.3	22				15	
5.	4.6	11.5	26	19		0.2	21	28	6	8	10	
6.	4.4	13.2	43	34		0.2	22	35	7	9	20	
7.	4.7	11.7	29	24		0.3	33	38	7	10	25	
8.	4.7	11.7	38	26		0.2	37	46	8	20	60	
9.	4.6	11.6			19	0.2	34	47	8	7	20	
10.	4.8	6.8	30	15		0.2	23	24	7	6	15	
11.	4.7	11.5			12	0.3	31	48	7	5	20	
12.	4.4	6.3	26	16		0.2	10	16	2	5	5	
13.	4.6	11.4	52	28		0.3	25	32	6	5	20	
14.	4.8	6.3	17	12		0.3	16	20	4	2	15	
15.	4.6	11.2			14	0.2	13	18	6	5	4	Has been chewed off.
16.	4.6	11.3	22	12		0.2	38	64	8	10	20	
17.	4.7	6.9	38	13		0.3	17	20	7	10	50	
18.	4.8	10.5	38	15		0.2	20	36	7	10	30	
19.	4.7	8.5	26	10		0.2	30	46	9	10	25	
20.	4.9	11.4	31	18		0.3	28	43	7	20	30	

AGROPYRON SPICATUM Study Area Cedar Mountain Date Aug. 8, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKELETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	14.0		30	11		0.2	16				10	
2.	14.1	13.1	38	25		0.3	19.0	35	7	3	30	
3.	4.8	13.0	40	23		0.3	32	43	6	8	20	
4.	14.1				24	0.3	22				15	
5.	14.2	13.2	26	19		0.2	21	28	6	8	10	
6.	4.8	13.3	43	34		0.2	22	35	7	9	30	
7.	4.8	12.8	29	24		0.3	33	38	7	10	25	
8.	4.8		38	26		0.2	37	46	8	20	60	
9.	14.3				19	0.2	34	47	8	7	20	
10.	14.1	13.1	30	15		0.2	23	24	7	6	15	
11.	14.0	13.1			12	0.3	31	48	7	5	20	
12.	14.0		26	16		0.2	10	16	2	5	5	
13.	4.8		52	28		0.3	25	32	6	5	20	
14.	4.8		17	12		0.3	16	20	4	2	15	
15.	14.1				14	0.2	13	18	6	5	4	Has been chewed off.
16.	4.18	13.1	22	12		0.2	38	64	8	10	20	
17.	4.8	12.8	38	13		0.3	17	20	7	10	50	
18.	4.9	12.8	38	15		0.2	20	36	7	10	30	
19.	14.1	13.1	26	10		0.2	30	46	9	10	25	
20.	14.2	13.1	31	18		0.3	28	43	7	20	30	

AGROPYRON SPICATUM Study Area Cedar Mountain Date Aug. 30, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	14.6		30	11		0.2	16				Eaten.	
2.	14.5	13.5	38	25		0.3	19.0	35	7	3	30	
3.	14.4		40	23		0.3	32	43	6	8	20	
4.	14.6				24	0.3	22				15	
5.	14.3	13.4	26	19		0.2	21	28	6	8	10	
6.	14.5	13.5	43	34		0.2	22	35	7	9	30	
7.	14.3	13.4	29	24		0.3	33	38	7	10	25	
8.	14.2	13.4	38	26		0.2	37	46	8	20	60	SEEDS CAST BUT
9.	14.4	13.4			19	0.2	34	47	8	7	20	LOWER HALF OF STEM
10.	14.4	13.3	30	15		0.2	23	24	7	6	15	IS GREEN
11.	14.4	13.4			12	0.3	31	48	7	5	20	
12.	14.2		26	16		0.2	10	16	2	5	5	
13.	14.3	13.3	52	28		0.3	25	32	6	5	20	
14.	14.4	13.4	17	12		0.3	16	20	4	2	Eaten.	
15.	14.2	13.3			14	0.2	13	18	6	5	4	
16.	14.2	13.3	22	12		0.2	38	64	8	10	20	
17.	14.1		38	13		0.3	17	20	7	10	50	
18.	14.3	13.3	38	15		0.2	20	36	7	10	30	
19.	14.3	13.3	26	10		0.2	30	46	9	10	Eaten.	
20.	14.2	13.3	31	18		0.3	28	43	7	20	30	

AGROPYRON SPICATUM

Study Area Cumberland #3

Date May 23, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKELETS/CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH	WIDTH	DIAM							
			cm	cm	cm	cm	cm	cm				
1.	3.1				20	0.2	25				20	
2.	3.1		30	8		0.2	28				20	
3.	2.9				20	0.2	24				15	
4.	3.1					0.2	23				1	
5.	3.1					0.2	28				6	
6.	3.1				13	0.2	24				12	
7.	2.9				12	0.2	25				30	
8.	3.1					0.2	19				3	
9.	3.0				14	0.2	28				25	
10.	4.0					0.2	18				3	
11.	3.1				15	0.2	35				75	
12.	2.9				16	0.2	24				50	
13.	3.1				13	0.2	22				20	
14.	3.1					0.2	17				5	
15.	4.1					0.2	28				5	
16.	3.1		14	5		0.2	19				20	
17.	3.3					0.2	24				2	
18.	4.0					0.2	27				3	
19.	3.1					0.2	14				1	
20.	3.2				12	0.2	29				15	

AGROPYRON SPICATUM Study Area Cumberland #3 Date June 6, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	3.2					0.4	26					
2.	3.2					0.3	28					
3.	3.0					0.3	25					
4.	3.0					0.3	24					
5.	3.0					0.3	28					
6.	3.1					0.3	25					
7.	3.4					0.3	25					
8.	3.5					0.3	20					
9.	3.5					0.3	29					
10.	4.0					0.3	19					
11.	3.4					0.3	45					
12.	3.2					0.3	28					
13.	3.3					0.3	29					
14.	3.3					0.3	19					
15.	4.0					0.3	29					
16.	3.5					0.3	21					
17.	3.4					0.3	28					
18.	3.4					0.3	29					
19.	3.2					0.3	14					
20.	3.5					0.4	32					

AGROPYRON SPICATUM Study Area Cumberland #3 Date June 26, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH cm	MAX LEAF HGHT cm	MAX SPIKE HGHT cm	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm							
1.	3.5	6.0				.2	34.5	23.0	7			
2.	3.2	6.0				.2	36.5	7.5	6			
3.	3.0					.2	32.5					
4.	3.5					.2	28.8					
5.	3.2					.2	32.0					
6.	4.0					.2	26.1					
7.	3.9	6.0				.2	59.5	24.0	10			
8.	3.8					.2	20.2					
9.	3.6					.3	30.0					
10.	4.1	5.1				.2	34.5	3.5	2			
11.	4.0	6.0				.3	52.2	17.8	6			
12.	3.9	5.8				.2	46.0	18.0	5			
13.	3.3	5.8				.2	32.5	14.0	6			
14.	3.9					.2	21.0					
15.	4.2	5.8				.2	33.0	15.5	5			
16.	4.1	6.0				.2	29	16.0	6			
17.	4.1					.2	35.5					
18.	3.8					.1	30.0					
19.	3.9					.1	19.3					
20.	4.0	5.9				.2	35.0	18	6			

AGROPYRON SPICATUM Study Area Cumberland #3 Date July 18, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH	WIDTH	DIAM							
			cm	cm	cm	cm	cm	cm				
1.	14.3	11.5	14	7		0.2	36	38	7	5	30	
2.	14.1	13.9	28	6		0.3	38	36	7	10	60	
3.	14.1	11.5			9	0.4	36	48	8	5	20	
4.	14.2	11.8			15	0.3	31	41	7	15	30	
5.	14.2				4	0.3	55				5	
6.	14.1	11.5	10	6		0.3	32	39	8	1	10	
7.	14.2	10.5	20	11		0.3	35	62	9	10	30	
8.	14.1	11.6			7	0.3	37	32	10	10	10	
9.	14.0		14	9		0.4	30				25	
10.	14.0				5	0.3	56				6	
11.	14.0	11.0			16	0.3	5.7	52	6	20	50	
12.	14.1	11.7			14	0.3	50	50	6	15	35	
13.	14.0	9.8	11	8		0.3	32	39	7	4	15	
14.	14.2	11.4	14	12		0.3	37	52	8	5	25	
15.	14.1	11.2			6	0.3	46	56	7	2	10	
16.	14.0	11.2	11	5		0.2	30	47	7	10	10	
17.	14.1	11.6	27	9		0.3	38	72	7	5	40	
18.	14.2	11.3				0.2	40	53	7	1	0	
19.	14.0					0.2	20				3	
20.	14.1	11.4	12	6		0.3	38	39	7	5	20	

AGROPYRON SPICATUM Study Area Cumberland #3 Date Aug. 8, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	14.3	13.8	14	7		0.2	36	38	7	5	30	
2.	14.2	13.4	28	6		0.3	38	36	7	10	60	
3.	14.1	13.2			9	0.4	26	48	8	5	20	
4.	14.4	13.3			15	0.3	31	41	7	15	30	
5.	14.4				4	0.3	55				5	
6.	14.0		10	6		0.3	32	39	8	1	10	
7.	14.2	13.5	20	11		0.3	35	62	9	10	30	
8.	14.2	13.3			7	0.3	37	32	10	10	10	
9.	14.5	13.5	14	9		0.4	30				25	
10.	14.3	13.3			5	0.3	56				6	
11.	14.4	13.6			16	0.3	5.7	52	6	20	50	
12.	14.3	13.3			14	0.3	50	50	6	15	35	
13.	14.3	13.3	11	8		0.3	32	39	7	4	15	
14.	14.2	13.3	14	12		0.3	37	52	8	5	25	
15.	14.1	13.2			6	0.3	46	56	7	2	10	
16.	14.3	13.3	11	5		0.2	30	47	7	10	10	
17.	14.1	12.7	27	9		0.3	38	72	7	5	40	
18.	14.0					0.2	40	53	7	1	0	
19.	14.1					0.2	20				3	
20.	14.1	13.2	12	6		0.3	38	39	7	5	20	

AGROPYRON SPICATUM Study Area Cumberland #3 Date Aug. 30,1978

PLANT NO.	PHENO. STAGE SCORE VEG	PHENO. STAGE SCORE REPR	CLUMP LGTH	CLUMP WIDTH	CLUMP DIAM	MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
			cm	cm	cm	cm	cm	cm				
1.	14.6	15.3	14	7		0.2	36	38	7	5	30	
2.	14.4	13.5	28	6		0.3	38	36	7	10	60	
3.	14.4	15.2			9	0.4	26	48	8	5	20	
4.	14.5	13.6			15	0.3	13	41	7	15	30	
5.	14.5				4	0.3	55				5	
6.	14.6		10	6		0.3	32	39	8	1	10	
7.	14.4	13.5	20	11		0.3	35	62	9	10	30	
8.	14.5	13.5			7	0.3	37	32	10	10	10	
9.	14.6	13.5	14	9		0.4	30				25	
10.	14.5	13.6			5	0.2	56				6	
11.	14.6	15.1			16	0.3	5.7	52	6	20	50	
12.	14.5	13.5			14	0.3	50	50	6	15	35	
13.	14.5	13.6	11	8		0.3	32	39	7	4	15	
14.	14.6	13.7	14	12		0.3	37	52	8	5	25	
15.	14.5	13.7			6	0.3	46	56	7	2	10	
16.	14.6	13.4	11	5		0.2	30	47	7	10	10	
17.	14.3		12.7	9		0.3	38					
18.	14.2	13.3				0.2	40					
19.	14.7	15.2				0.2	20				3	
20.	14.3	13.6	12	6		0.3	38	39	7	5	20	

AGROPYRON SPICATUM Study Area Cumberland #3 Date Nov. 4, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH cm	MAX LEAF HGHT cm	MAX SPIKE HGHT cm	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm							
1.	16.6					.2	4.2					
2.	16.6					.2	6.4					
3.	16.6					.2	5.7					
4.	16.7					.2	4.2					
5.	16.7					.2	13.1					
6.	16.7					.2	5.7					
7.	16.6					.2	11.5					
8.	16.3					.1	4.2					
9.	16.2					.1	9.3					
10.	17											
11.	16.2					.2	3.5					
12.	16.2					.1	3.5					
13.	16.2					.1	3.2					
14.	16.2					.1	5.2					
15.	16.2					.1	4.5					
16.	16.2					.1	5.2					
17.	16.6					.2	6.5					
18.	16.7					.2	13.5					
19.	16.2					.1	3.7					
20.	16.5					.1	8.0					

AGROPYRON SPICATUM Study Area Demer Date May 25, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	4.1		22	8		.2	21.5				25	
2.	4.5				36	.3	29				107	One Plant boot stage.
3.	4.3		22	10		.2	33				90	
4.	4.3				43	.2	35				107	
5.	4.2				30	.2	29.5				107	
6.	4.3			10		.2	27				75	
7.												
8.												
9.												
10.												
11.												
12.												
13.												
14.												
15.												
16.												
17.												
18.												
19.												
20.												

AGROPYRON SPICATUM Study Area Demer Date June 8, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	4.3					.3	27.2					
2.	4.5					.4	26.3					7.2 Early Anthesis on one head.
3.	4.4					.3	31.0					
4.	4.3					.3	34.0					
5.	4.3					.3	34.2					
6.	4.6					.3	30.1					
7.												
8.												
9.												
10.												
11.												
12.												
13.												
14.												
15.												
16.												
17.												
18.												
19.												
20.												

AGROPYRON SPICATUM Study Area Demer Date June 28, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	4.3+					.3	17.2					
2.	4.4	10.0				.3	29.5	47.5	12	20		
3.	4.6+					.4	36.5					
4.	4.5+					.3	33.2					
5.	4.5+	10.0				.3	33.2	50.5	5	1		
6.	4.5+					.3	31.0					
7.												
8.												
9.	+ More than Four Leaves.											
10.												
11.												
12.												
13.												
14.												
15.												
16.												
17.												
18.												
19.												
20.												

AGROPYRON SPICATUM Study Area Demer Date July 20, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	4.5		18	10		.3	17				20	
2.	4.5	13.2	47	31		.3	45	56	7	15	60	
3.	4.6	13.3	22	13		.3	38	47	6	8	50	
4.	4.6	13.3	41	29		.3	42	50	6	20	100	
5.	4.6	13.3	34	25		.3	37	45	6	10	70	
6.	4.6	13.1	18	17		.3	30	50	6	1	25	
7.												
8.												
9.												
10.												
11.												
12.												
13.												
14.												
15.												
16.												
17.												
18.												
19.												
20.												

AGROPYRON SPICATUM Study Area Demer Date Aug. 9, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	4.6					.3	20.5					
2.	4.6	133				.3	39.0					
3.	4.7					.2	32.3					
4.	4.8					.3	33.4					
5.	4.7					.3	30.5					
6.	4.7	13.4				.3	32.5					
7.												
8.												
9.												
10.												
11.												
12.												
13.												
14.												
15.												
16.												
17.												
18.												
19.												
20.												

AGROPYRON SPICATUM Study Area Demer Date Sept. 2, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	14.1					.3	20.5					
2.	14.1	13.4				.3	39.0					
3.	14.2					.2	3.23					
4.	14.2	15.1				.3	33.4					
5.	14.1	13.8				.3	30.5					
6.	14.1	13.8				.3	32.5					
7.												
8.												
9.												
10.												
11.												
12.												
13.												
14.												
15.												
16.												
17.												
18.												
19.												
20.												

AGROPYRON SPICATUM Study Area Demer Date Aug. 9, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	4.6					.3	20.5					
2.	4.6	133				.3	39.0					
3.	4.7					.2	32.3					
4.	4.8					.3	33.4					
5.	4.7					.3	30.5					
6.	4.7	13.4				.3	32.5					
7.												
8.												
9.												
10.												
11.												
12.												
13.												
14.												
15.												
16.												
17.												
18.												
19.												
20.												

AGROPYRON SPICATUM Study Area Demer Date Sept. 2, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	14.1					.3	20.5					
2.	14.1	13.4				.3	39.0					
3.	14.2					.2	3.23					
4.	14.2	15.1				.3	33.4					
5.	14.1	13.8				.3	30.5					
6.	14.1	13.8				.3	32.5					
7.												
8.												
9.												
10.												
11.												
12.												
13.												
14.												
15.												
16.												
17.												
18.												
19.												
20.												

AGROPYRON SPICATUM Study Area Demer Date Nov. 2, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKELETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	16.2	15.8				.1	4.7					
2.	16.2	15.8				.2	5.2					
3.	16.3					.2	5.5					
4.	14.8											
5.	14.8											
6.	16.3	15.8				.2	3.2					
7.												
8.												
9.												
10.												
11.												
12.												
13.												
14.												
15.												
16.												
17.												
18.												
19.												
20.												

AGROPYRON SPICATUM Study Area Horse Creek Date April 29, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	2.8					.3	11					
2.	3.3					.4	15'5"					
3.	2.7					.3	11'5"					
4.	3.5					.3	15.1					
5.	3.3					.2	7					
6.	3.4					.3	15.4					
7.	3.4					.3	15.4					
8.	3.3					.4	15.0					
9.	3.3					.3	11					
10.	3.5					.3	15.3					
11.	3.3					.2	11.2					
12.	3.4					.3	7.0					
13.	3.4					.2	13.2					
14.	3.5					.4	13.4					
15.	3.5					.2	10.2					
16.	3.3					.2	8					
17.	2.4					.2	5.6					
18.	3.4					.2	13.4					
19.	3.4					.3	12					
20.	3.4					.2	14.4					

AGROPYRON SPICATUM   Study Area Horsecreek   Date May 25, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	4.5				16	.2	31				100	
2.	4.3				14	.2	35				75	
3.	4.3				16	.2	32				50	
4.	3.9				3	.2	13				8	
5.	3.3				1.5	.2	.16				3	
6.	4.1		21	23		.2	29				60	
7.	4.2				7.5	.2	33				45	
8.	4.1				13	.2	18				20	
9.	4.1				9.5	.2	27				50	
10.	4.1				10	.2	28.5				18	
11.	3.1					.2	13				1	
12.	4.1				7	.2	.20				30	
13.	4.1				9	.2	27				25	
14.	4.1				7	.2	25				20	
15.	4.1				13	.2	.5				50	
16.	4.1		9	3		.2	18				20	
17.	3.3				2.5	.2	9.5				5	
18.	3.5				6	.2	23				25	
19.	3.5				2	.2	15.5				6	
20.	4.3				3	.2	23.3				7	

AGROPYRON SPICATUM Study Area Horsecreek Date June 8, 1978

PLANT NO.	PHENO. STAGE SCORE VEG	PHENO. STAGE SCORE REPR	CLUMP LGTH cm	CLUMP WIDTH cm	CLUMP DIAM cm	MAX LEAF WIDTH cm	MAX LEAF HGHT cm	MAX SPIKE HGHT cm	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
1.	4.5	6.5				.4	22					
2.	4.3	6.4				.4	25					
3.	4.4	6.4				.4	26					
4.	4.2					.3	13					
5.	4.5	6.3				.3	29					
6.	4.2	6.3				.3	18					
7.	4.2	6.2				.3	28					
8.	4.3	6.3				.3	21					
9.	4.2	6.2				.3	18					
10.	4.3	6.3				.3	25					
11.	4.3					.2	11					
12.	4.3					.3	19					
13.	4.3					.2	22					
14.	4.3	6.1				.3	22					
15.	4.3					.3	18					
16.	4.3					.2	18					
17.	4.2					.3	10					
18.	4.3					.3	19					
19.	4.2					.2	19					
20.	4.3					.3	20					

AGROPYRON SPICATUM

Study Area Horsecreek

Date June 30, 1978

PLANT NO.	PHENO. STAGE SCORE			CLUMP		MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	4.8	6.5				.2		49.5				
2.	4.8	6.6				.2		60.5				
3.	4.8	6.5				.2		68.6				
4.	4.6					.1	12.5					
5.	4.9					.2	20.5					
6.	4.7	6.5				.2		50.2				
7.	4.7	6.5				.2		67.5				
8.	4.7	6.4				.2		43.5				
9.	4.6					.1	14.0					
10.	4.5	6.5				.2		62.8				
11.	4.0					.2	10.5					
12.	4.4					.2	15.0					
13.	4.9					.2	26.2					
14.	4.5	6.0				.2		29.5				
15.	4.8					.2	17.0					
16.	4.5					.2	17.1					
17.	4.5					.2	11.0					
18.	4.8					.2	18.5					
19.	4.3					.2	17.0					
20.	4.7					.2	19.4					

AGROPYRON SPICATUM Study Area Horsecreek Date July 20, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKELETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	4.9	11.9	18	16		.3	34	58	8	10	35	
2.	4.9	12.4	15	12		.3	42	57	8	15	25	
3.	4.9	12.0	19	14		.4	46	69	8	15	40	
4.	4.8	12.3	12	9		.4	43	65	9	5	20	
5.	4.9	12.5	13	8		.3	39	59	9	5	25	
6.	4.9	12.4	43	20		.3	32	50	8	10	25	
7.	4.8	12.6	38	13		.4	41	66	8	10	50	
8.	4.9	12.6	21	17		.3	37	49	7	15	40	
9.	4.8		24	9		.2	26				20	
10.	4.7	12.2	41	22		.3	37	61	7	10	50	
11.	4.8		15	13		.3	14				15	
12.	14.1	12.0	34	30		.3	19	30	5	20	30	
13.	4.9		10	6		.4	29				10	
14.	4.9	12.1	33	25		.3	28	49	6	4	20	
15.	14.1	12.6	33	9		.3	37	48	8	8	35	
16.	4.9	12.1	37	13		.3	30	69	9	2	25	
17.	4.8		11	9		.3	16				8	
18.	14.1					.3	28				10	
19.	14.1		25	4		.2	21				10	
20.	4.9		13	9		.3	15				15	

AGROPYRON SPICATUM Study Area Horse creek Date Aug. 10, 1978

PLANT NO.	PHENO. STAGE SCORE VEG	PHENO. STAGE SCORE REPR	CLUMP LGTH cm	CLUMP WIDTH cm	CLUMP DIAM cm	MAX LEAF WIDTH cm	MAX LEAF HGHT cm	MAX SPIKE HGHT cm	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
1.	4.8	13.3				.2	19.0	58				
2.	4.9	13.3				.3	28.0	50				
3.	4.7	13.2				.3	23.0	68				
4.	4.8					.1	18.2					
5.	14.1											
6.	14.1	13.4						58.5				
7.	4.9	13.3				.3	31.2	62				
8.	14.1	13.4						50				
9.	4.9					.2	23					
10.	4.8	13.4				.3	34.4	44				
11.	14.2											
12.	4.9					.2	20					
13.	4.8					.2	25.5					
14.	4.9	13.4				.2	24	51				
15.	4.9					.2	18.5					
16.	14.0											
17.	4.8					.2	11.0					
18.	4.8					.3	21.0					
19.	14.1											
20.	4.8					.2	20.0					

AGROPYRON SPICATUM Study Area Horsecreek Date Sept. 3, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	14.1	13.3				.2	19.0	58				
2.	14.2	13.5				.3	28.0	50				
3.	14.1	13.3				.3	23.0	68				
4.	14.0					.1	18.2					
5.	14.1											
6.	14.1	13.5						58.5				
7.	14.2	13.6				.3	31.2	62				
8.	14.1	13.3						50.0				
9.	14.1					.2	23					
10.	14.1	13.4				.3	34.4	44				
11.	14.6											
12.	14.3					.2	20					
13.	14.2					.2	25.5					
14.	14.1	13.4				.2	24	51				
15.	14.2					.2	18.5					
16.	14.1											
17.	14.2					.2	11.0					
18.	14.2					.3	21.0					
19.	14.1											
20.	14.0					.2	20.0					

AGROPYRON SPICATUM Study Area Horse Creek Date Sept. 24, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	16.2	15.8										
2.	14.5	15.8										
3.	14.4	15.8										
4.	14.6											
5.	14.3											
6.	14.3											
7.	14.4	15.8										
8.	14.4	15.9										
9.	14.5	15.8										
10.	14.4	15.9										
11.	14.8											
12.	14.5	15.9										
13.	14.3											
14.	14.4	15.9										
15.	14.3	15.8										
16.	14.5											
17.	14.4											
18.	14.8											
19.	14.5											
20.	14.4											

AGROPYRON SPICATUM Study Area Owl Draw Date May 26, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	3.1				7.5	.1	9.8				15	
2.	2.9		1	1	1	.1	10.2				7	
3.	2.9					.1	15.0				1	
4.	2.3					.1	10.0				1	
5.	3.1				5.5	.1	11.2				20	
6.	2.9					.1	12.2				1	
7.	3.1				4.5	.1	17.5				10	
8.	2.6				3.0	.1	8.0				10	
9.	2.9				7.0	.1	11.0				35	
10.	2.5				6.0	.1	6.0				25	
11.	3.1		17	12		.1	17.5				40	
12.	2.8		14	10		.1	10.0				15	
13.	3.1				2.0	.1	11.0				7	
14.	3.3				12.0	.2	12.0				35	
15.	2.4				2.0	.1	7.0				8	
16.	2.5				2.0	.1	14.0				4	
17.	2.8		12	8		.2	12.0				25	(Plants dead, replaced)
18.	2.4				3.0	.1	8.5				3	
19.	3.0				2.0	.2	16.0				10	
20.	2.9		11	6		.2	11.5				45	

AGROPYRON SPICATUM Study Area Owl Draw Date June 9, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	3.6					.2	11.0					
2.	3.5					.2	16.0					
3.	3.5					.2	15.5					
4.	2.9					.1	9.5					
5.	4.1					.2	13.2					
6.	3.1					.2	14.0					
7.	3.1					.2	9.0					
8.	3.5					.2	14.2					
9.	3.5					.2	15.1					
10.	3.9					.2	14.5					
11.	3.9					.3	18.5					
12.	4.1					.3	13.0					
13.	3.8					.1	18.0					
14.	3.5					.2	14.6					
15.	4.0					.2	8.0					
16.	3.1					.2	11.6					
17.	4.1					.3	17.0					
18.	3.5					.2	10.9					
19.	3.5					.2	11.5					
20.	3.5					.2	13.5					

AGROPYRON SPICATUM Study Area Owl Draw Date July 1, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	4.2					.2	13.5					
2.	3.9					.2	17.0					
3.	3.9					.1	18.3					
4.	2.8					.1	18.5					
5.	4.3					.2	17.5					
6.	4.1					.2	15.5					
7.	3.9					.2	18.7					
8.	4.0					.2	14.6					
9.	3.8					.2	11.1					
10.	3.8					.2	18.2					
11.	4.3					.3	24.0					
12.	3.0					.1	13.5					
13.	4.9					.2	20.5					
14.	4.5					.2	17.6					
15.	3.4					.1	8.5					
16.	4.2					.1	12.1					
17.	4.2					.2	15.0					
18.	4.0					.2	10.6					
19.	4.1					.1	18.0					
20.	4.3					.2	16.3					

AGROPYRON SPICATUM Study Area Owl Draw Date July 24, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	4.2				9	.2	11.5				8	
2.	3.9				3	.2	13.5				6	
3.	4.0					.2	17.2				2	
4.	3.0					.1	8.0				1	
5.	4.4				8	.2	16.0				20	
6.	3.5					.2	19.5				1	
7.	3.9					.2	18.1				3	
8.	4.3		6			.2	14.3				4	
9.	3.6					.2	11.2				2	
10.	3.9					.2	22.4				3	
11.	3.9					.2	22.0				2	
12.	4.2				16.5	.2	8.5				15	
13.	4.9					.2	18.7				2	
14.	4.9				18.0	.2	14.5				25	
15.	4.0					.2	11.0				2	
16.	4.1		14	5		.2	13.0				20	
17.	5.0				14.0	.3	17.0				25	
18.	4.1				6.5	.2	11.2				8	
19.	5.0					.2	16.0				3	
20.	4.5				14.0	.2	13.0				20	

AGROPYRON SPICATUM Study Area Owl Draw Date August 11, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	4.8					.2	10.7					
2.	14.1											
3.	4.7					.2	18.0					
4.	4.7					.2	10.5					
5.	4.8					.3	17.5					
6.	4.9					.2	19.5					
7.	4.7					.2	18.6					
8.	4.7					.2	14.5					
9.	4.7					.2	12.7					
10.	14.2											
11.	14.1											
12.	14.2											
13.	14.0											
14.	4.8					.2	17.0					
15.	14.1											
16.	14.0											
17.	5.8					.3	19.0					
18.	4.9					.2	10.9					
19.	5.9					.2	20.0					
20.	4.9					.2	15.0					

AGROPYRON SPICATUM Study Area Owl Draw Date September 4, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	14.1					.2	10.7					
2.	14.1											
3.	14.2					.2	18.0					
4.	14.2					.2	10.5					
5.	4.9					.3	17.5					
6.	4.8					.2	19.5					
7.	14.1					.2	18.6					
8.	14.0					.2	14.5					
9.	14.0					.2	12.7					
10.	14.0											
11.	14.3											
12.	14.2											
13.	14.2											
14.	14.1					.2	17.0					
15.	14.1											
16.	14.1											
17.	14.0					.3	19.0					
18.	14.1					.2	10.9					
19.	14.1					.2	20.0					
20.	14.2					.2	15.0					

AGROPYRON SPICATUM Study Area Owl Draw Date September 29, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	14.7											
2.	14.8											
3.	14.8											
4.	14.7											
5.	14.8											
6.	14.8											
7.	14.7											
8.	14.8											
9.	14.8											
10.	14.8											
11.	14.8											
12.	14.9											
13.	14.9											
14.	14.8											
15.	14.9											
16.	14.9											
17.	14.8											
18.	14.7											
19.	14.9											
20.	14.9											

AGROPYRON SPICATUM Study Area Redwash #2 Date April 29, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	2.1		11.7	.2								
2.	2.1		8.2	.2								
3.	2.3		7.5	.2								
4.	2.0		7.3	.2								
5.	2.1		10.2	.2								
6.	2.3		11.1	.2								
7.	2.0		4.5	.1								
8.	2.3		9.5	.2								
9.	2.1		6.0	.1								
10.	2.2		5.3	.2								
11.	2.1		8.5	.2								
12.	3.0		11.7	.2								
13.	3.0		10.2	.2								
14.	2.3		6.5	.2								
15.	2.4		8.3	.2								
16.	2.5		16.5	.2								
17.	3.0		10.6	.2								
18.	2.2		7.5	.2								
19.	2.2		10.5	.2								
20.	3.1		9.1	.1								

AGROPYRON SPICATUM Study Area Red Wash #2 Date May 22, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	3.0		90	45		.2	13				100	
2.	3.1		50	30		0.2	13				100	
3.	3.1		90	70		0.2	16.5				100	
4.	3.1		78	27		0.2	16.0				100	
5.	3.1				44	0.2	18.0				100	
6.	3.1		30	13		0.2	16.2				30	
7.	3.0		40	22		0.2	11.0				60	
8.	3.3		41	25		0.2	17.0				20	
9.	2.0		57	23		0.2	17.5				100	
10.	3.1		16	8		0.2	12.0				20	
11.	3.2		25	9		0.2	11.5				35	
12.	3.0		30	13		0.2	13.3				55	
13.	3.2		62	50		0.3	18.7				100	
14.	3.2				75	0.3	21.0				100	
15.	3.0				30	0.2	12.5				75	
16.	3.0		45	33		0.2	12.5				100	
17.	3.4		30	16		0.3	17.5				100	
18.	3.1				23	0.2	13.5				100	
19.	3.1		30	9		0.2	15.5				20	
20.	3.2					0.2	15.0				1	

AGROPYRON SPICATUM   Study Area Red Wash #2   Date June 5, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	3.1					.2	13					
2.	4.3					0.2	13					
3.	4.3					0.2	16.5					
4.	4.2					0.2	16.0					
5.	3.8					0.2	18.0					
6.	4.5					0.2	16.2					
7.	3.7					0.2	11.0					
8.	3.3					0.2	17.0					
9.	4.2					0.2	17.5					
10.	4.5					0.2	12.0					
11.	4.2					0.2	11.5					
12.	4.1					0.2	13.3					
13.	3.8					0.3	18.7					
14.	5.1					0.3	21.0					
15.	4.1					0.2	12.5					
16.	4.1					0.2	12.5					
17.	5.1					0.3	17.5					
18.	3.8					0.2	13.5					
19.	4.3					0.2	15.5					
20.	3.8					0.2	15.0					

AGROPYRON SPICATUM Study Area Red Wash #2 Date June 26, 1978

PLANT NO.	PHENO. STAGE SCORE VEG	PHENO. STAGE SCORE REPR	CLUMP LGTH cm	CLUMP WIDTH cm	CLUMP DIAM cm	MAX LEAF WIDTH cm	MAX LEAF HGHT cm	MAX SPIKE HGHT cm	NOS SPIKELETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
1.	4.5	6.7				0.3	39.0	48.0	8			
2.	4.3	6.3				0.2	37	41	6			
3.	4.2	6.3				0.3	32	32	6			
4.	4.2	6.3				0.3	51					
5.	4.7	6.4				0.3	33					
6.	4.2					0.3	18					
7.	4.2					0.3	16					
8.	4.3					0.3	27					
9.	4.4	6.5				0.3	38					
10.	4.2					0.3	20					
11.	4.2					0.2	13					
12.	4.3	6.2				0.3	31					
13.	4.3	6.5				0.3	27					Plant died.
14.	4.4	6.3				0.3	34					
15.	4.2	6.4				0.3	25					
16.	4.1					0.3	20					
17.	4.5	6.4				0.2	30					
18.	4.4					0.2	16					
19.	4.3	6.5				0.3	28					
20.	4.2					0.1	17					

AGROPYRON SPICATUM Study Area Red Wash #2 Date July 17, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	4.6	11.2	41	32		0.3	30	47	7	29	21	
2.	4.7	11.7	79	36		0.3	40	46	7	39	75	
3.	4.4	11.1	80	61		0.3	30	42	7	15	70	
4.	4.3	11.3	71	29		0.3	52	78	8	25	30	
5.	4.8	11.2	46	38		0.3	51	60	7	30	75	
6.	4.6		29	15		0.3	24					
7.	4.2	10.6	12	5		0.2	16	20	6	1	6	
8.	4.3		4	3		0.3	18				6	
9.	4.6	11.1	82	65		0.3	32	47	6	40	100	
10.	4.2		13	8		0.3	12				15	
11.	4.2	11.2	42	28		0.3	27	32	7	3	20	
12.	4.6	11.2	31	18		0.3	36	43	7	8	20	
13.	4.7	11.2	71	42		0.3	35	48	6	20	50	
14.	4.4	11.3			70	0.3	42	59	7	20	80	
15.	4.6	11.3	27	21		0.3	23	27	7	10	10	
16.	4.6	7.1	20	8		0.3	26	42	7	2	15	
17.	4.7	11.3			20	0.3	29	51	8	20	15	
18.	4.5	11.3	18	12		0.2	32	47	6	10	20	
19.	4.4		31	12		0.3	21				25	
20.	4.7	11.3	65	40		0.3	35	53	8	20	40	

AGROPYRON SPICATUM Study Area Red Wash #2 Date Aug. 4, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKELETS/CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	14.2	13.7				.2	38					
2.	14.1	13.2				.3	31					
3.	14.2	13.5				.2	29					
4.	14.3	13.6				.3	47					
5.	14.2	13.5				.3	38					
6.	14.3					.3	24					
7.	14.3					.3	20					
8.	14.3	13.6				.3	37					
9.	14.2	13.7				.3	21					
10.	14.3	13.6				.2	21					
11.	14.2	13.7				.3	25					
12.	14.3	13.6				.2	37					
13.	14.3	13.5				.3	42					
14.	14.2	13.6				.3	19					
15.	14.2	13.6				.3	19					
16.	14.3	13.7				.3	12					
17.	14.2	13.7				.3	44					
18.	14.2	13.6				.3	35					
19.	14.2	13.7				.3	36					
20.	14.3	13.6				.3	37					

AGROPYRON SPICATUM Study Area Red Wash #2 Date Aug. 28, 1978

PLANT NO.	PHENO. STAGE SCORE		CLUMP			MAX LEAF WIDTH	MAX LEAF HGHT	MAX SPIKE HGHT	NOS SPIKE-LETS/ CULM	NOS REPR CULMS	NOS VEG CULMS	MATURITY
	VEG	REPR	LGTH cm	WIDTH cm	DIAM cm	cm	cm	cm				
1.	14.2											
2.	14.3	15.4										
3.	14.1	13.2										
4.	14.3											Bases of leaves remaining
5.	14.3	13.7										very green, tip curled and brown.
6.	14.2											
7.	14.4											
8.	14.5											
9.	14.5	13.6										
10.	14.3											
11.	14.5											
12.	14.5	13.5										
13.	14.2	13.3										
14.	14.3											
15.	14.4	13.4										
16.	14.3	13.3										
17.	14.2	13.2										
18.	14.2	13.3										
19.	14.2	13.3										
20.	14.4	13.3										

AGROPYRON SPICATUM Study Area Red Wash #2 Date Nov. 6, 1978

PLANT NO.	PHENO. STAGE SCORE		MAX. LEAF WIDTH cm	MAX. LEAF HGTH. cm	MAX. SPIKE HGTH. cm	NOS. SPIKE-LETS/ CULM	NOS. OF VEG. PLANTS
	VEG.	REPR.					
1.	17	17					
2.	17	17					
3.	17	17					
4.	17	17					
5.	17	17					
6.	17	17					
7.	17	17					
8.	17	17					
9.	17	17					
10.	17	17					
11.	17	17					
12.	17	17					
13.	17	17					
14.	17	17					
15.	17	17					
16.	17	17					
17.	17	17					
18.	17	17					
19.	17	17					
20.	17	17					

ARTEMISIA NOVA

Study Area Horse creek

Date April 29, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.1										
2.	1.3										
3.	1.3										
4.	1.3										
5.	1.3										
6.	1.4										
7.	2.1										
8.	1.3										
9.	2.0										
10.	1.3										
11.	1.4										
12.	1.3										
13.	2.0										
14.	2.2										
15.	1.3										
16.	2.3										
17.	2.3										
18.	1.5										
19.	2.0										
20.	1.2										

ARTEMISIA NOVA Study Area Horse creek Date May 25, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.2		21	40	26		4	60			
2.	2.2		8	14	7		2	5			Dead, replaced.
3.	2.3		10	28	13		4	10			
4.	2.4		28	43	34		4	20			
5.	2.3		15	39	18		4	20			
6.	2.3		23	35	22		4	10			
7.	2.2		46	109	49		4	45			
8.	2.3		8	29	18		4	35			
9.	2.3		18	50	32		4	30			
10.	2.3		7	34	8		5	95			
11.	2.3		44	97	89		4	15			
12.	2.3		19	48	32		4	40			
13.	2.3		42	63	35		4	45			
14.	3.6		23	49	25		4	20			
15.	2.3		13	18	9		5	45			
16.	2.4		29	39	32		4	15			
17.	2.2		9	31	8		5	80			
18.	2.3		21	27	17		4	20			
19.	2.4		31	55	26		4	10			
20.	2.3		9	13	10		2	5			

ARTEMISIA NOVA

Study Area Horse Creek

Date June 8, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	2.2		21	40	26					
2.	2.2		8	14	7					
3.	2.2		10	28	13					
4.	2.5		28	43	34					
5.	2.3		15	39	18					
6.	2.3		24	35	22					
7.	2.2		46	109	49					
8.	2.4		8	29	18					
9.	2.2		18	50	32					
10.	2.2		7	34	8					
11.	2.4		44	97	89					
12.	2.4		19	48	32					
13.	2.2		42	63	35					
14.	2.6		23	49	25					
15.	2.3		13	18	9					
16.	2.5		29	39	32					
17.	2.2		9	31	8					
18.	2.4		21	27	17					
19.	2.3		31	55	26					
20.	2.4		9	13	10					

ARTEMISIA NOVA   Study Area Horse creek   Date June 30, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT.	PLANT LNGTH.	PLANT WIDTH	PLANT DIAM.	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH.	NEW SEED STALK LNGTH	
	VEG.	REPR.	cm	cm	cm	cm			cm	cm	
1.	2.7	5.1	21	40	26						
2.	2.6		8	14	7						
3.	2.7	5.0	10	28	13						
4.	2.5	5.0	28	43	34						
5.	2.6	5.1	15	39	18						
6.	2.5	5.0	24	35	22						
7.	2.5		46	109	49						
8.	2.7		8	29	18						
9.	2.7		18	50	32						
10.	2.6		7	34	8						
11.	2.8	5.0	44	97	89						
12.	2.7		19	48	32						
13.	2.6		42	63	25						
14.	2.8		23	49	25						
15.	2.7		13	18	9						
16.	2.7		29	39	32						
17.	2.6		9	31	8						
18.	2.6		21	27	17						
19.	2.6	5.1	31	55	26						
20.	2.7		9	13	10						

ARTEMISIA NOVA Study Area Horsecreek Date July 20, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	3.4	5.5									
2.	3.3										
3.	3.3	5.6									
4.	3.5	5.5									
5.	3.5	5.7									
6.	3.4	5.6									
7.	3.6	5.5									
8.	3.4	5.6									
9.	3.4	5.6									
10.	3.4	5.6									
11.	3.5	5.6									
12.	3.5	5.4									
13.	3.6	5.6									
14.	3.5	5.4									
15.	3.6	5.4									
16.	3.6	5.6									
17.	3.5	5.6									
18.	3.5	5.5									
19.	3.6	5.6									
20.	3.5	5.4									

ARTEMISIA NOVA Study Area Horse creek Date Aug. 10, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	4.5	5.6	20	25	16		4	10	1.5	18
2.	4.4		8	14	7		2	0	3.0	
3.	14.0	5.7	8	20	10		3	2	1.0	17
4.	4.5	5.5	24	40	28		4	3	2.3	14.4
5.	4.5	5.7	16	30	14		4	12	2.6	15.2
6.	4.5	5.6	21	30	20		3	7	1.9	19.6
7.	14.2	5.6	37	56	40		5	13	2.7	17.5
8.	14.1	5.7	10	25	14		3	6	2.0	15.0
9.	14.1	5.7	18	42	30		5	38	2.3	13.0
10.	4.6	5.7	8.5	40	20		5	96	.3	11.5
11.	4.2	5.7	50	80	52		4	11	1.5	17.2
12.	4.6	5.7	17	40	24		4	18	1.9	10.8
13.	4.8	5.7	45	64	30		5	50	2.4	16.6
14.	4.7	5.7	19	40	20		3	0	4.0	18.1
15.	4.5	5.8	18	23	14		5	60	1.3	12.6
16.	4.7	5.7	30	34	23		4	7	3.0	10.2
17.	4.7	5.6	10	16	8		3	40	2.8	15.1
18.	4.5	5.5	21	28	15		3	10	2.0	16.5
19.	14.1	5.6	30	52	22		3	0	2.5	16.5
20.	14.1	5.7	8	14	7		2	0	2.0	11.1

ARTEMISIA NOVA

Study Area Horse creek

Date Sept. 3, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	14.0	6.1	20	25	16						
2.	4.9		8	14	7						
3.	14.0	6.1	8	20	10						
4.	4.9	5.9	24	40	28						
5.	4.9	5.9	16	30	14						
6.	14.1	5.9	21	30	20						
7.	14.1	6.0	37	56	40						
8.	14.0	6.0	10	25	14						
9.	14.3	5.9	18	42	30						
10.	4.8		8.5	40	20						
11.	4.9	5.9	50	80	52						
12.	14.0	6.0	17	40	24						
13.	14.0	6.0	45	64	30						
14.	14.0	6.1	19	40	20						
15.	14.1	6.0	18	23	14						
16.	4.9	5.9	30	34	23						
17.	14.1	5.9	10	16	8						
18.	4.9	6.0	21	28	15						
19.	14.2	5.9	30	52	22						
20.	4.9	5.9	8	14	7						

ARTEMISIA NOVA Study Area Horse creek Date Sept. 24, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	14.0	8.7							2	17
2.	14.1								5	
3.	14.0	8.3							3	17
4.	14.0	8.6							2	15
5.	14.0	8.6							2	13
6.	14.2	8.6							3	19
7.	14.1	8.5							2	18
8.	14.2	8.8							2	13
9.	14.2	8.5							2	13
10.	14.1								5	
11.	14.0	8.6							3	22
12.	14.1	8.6							3	15
13.	14.1	8.2							3	17
14.	14.1	8.8							8	17
15.	14.2	8.6							3	13
16.	14.1	8.3							3	14
17.	14.2	8.6							2	11
18.	14.0	8.8							2	19
19.	14.1	8.4							3	18
20.	14.1	8.5							2	12

ARTEMISIA NOVA

Study Area Owl Draw

Date May 26, 1978

PLANT NO.	PHENO. STAGE SCORE. VEG.	REPR.	PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
1.	2.2		8	14	6		3	20			
2.	2.2		11	17	13		4	25			
3.	2.1		7	16	8		4	10			Browsed
4.	2.0		7	25	15		4	20			
5.	2.3		8	15	9		3	10			
6.	2.0		8	29	14		5	45			
7.	2.0		14	30	20		4	25			
8.	2.2		13	23	12		4	15			
9.	2.1		10	23	15		4	25			
10.	2.0		7	15	9		4	50			
11.	2.1		6	24	12		5	50			
12.	1.9		8	27	20		4	45			
13.	2.1		8	24	14		4	50			
14.	1.9		9	27	21		4	45			
15.	2.0		10	61	37		4	35			
16.	2.0		6	24	15		4	50			
17.	2.1		9	29	21		4	20			
18.	2.1		14	49	28		4	30			
19.	2.0		10	27	19		4	20			
20.	2.2		4	8	6		2	25			

ARTEMISIA NOVA   Study Area Owl Draw   Date June 8, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PERCENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.3		8	14	6						
2.	2.2		11	17	13						
3.	2.2		7	16	8						
4.	2.3		7	25	15						
5.	2.3		8	15	9						
6.	2.2		8	29	14						
7.	2.3		14	30	20						
8.	2.2		13	23	12						
9.	2.2		10	23	15						
10.	2.2		7	15	9						
11.	2.2		6	24	12						
12.	2.2		8	27	20						
13.	2.1		8	24	14						
14.	2.1		9	27	21						
15.	2.3		10	61	37						
16.	2.3		6	24	15						
17.	2.1		9	29	21						
18.	2.2		14	49	28						
19.	2.2		10	27	19						
20.	2.1		4	8	6						

ARTEMISIA NOVA

Study Area Owl Draw

Date July 1, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	3.3		8	14	6						
2.	3.2		11	17	13						
3.	3.3		7	16	8						
4.	3.3		7	25	15						
5.	3.4	5.0	8	15	9						
6.	3.3		8	29	14						
7.	3.4	5.0	14	30	20						
8.	3.2	5.0	13	23	12						
9.	3.3	5.0	10	23	15						
10.	3.3	5.0	7	15	9						
11.	3.3	5.0	6	24	12						
12.	3.2		8	27	20						
13.	3.3		8	24	14						
14.	3.2		9	27	21						
15.	3.4	5.0	10	61	37						
16.	3.3	5.0	6	24	15						
17.	3.3	5.0	9	29	21						
18.	3.2	5.0	14	49	28						
19.	3.3		10	27	19						
20.	3.3		4	8	6						

ARTEMISIA NOVA Study Area Owl Draw Date July 24, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT.	PLANT LNGTH.	PLANT WIDTH	PLANT DIAM.	PLANT AGE CLASS	DEAD BRANCH PERCENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.	cm	cm	cm	cm					
1.	3.5		8	14	6						
2.	3.2		11	17	13						
3.	3.3		7	16	8						
4.	3.5	5.5	7	25	15					16	
5.	3.4		8	15	9						
6.	3.4		8	29	14						
7.	3.5	5.5	14	30	20					14	
8.	3.3	5.5	13	23	12					13	
9.	3.4	5.4	10	23	15					11	
10.	3.4	5.4	7	15	9					7	
11.	3.4	5.4	6	24	12					14	
12.	3.4		8	27	20						
13.	3.4		8	24	14						
14.	3.3		9	27	21						
15.	3.4	5.5	10	61	37					20	
16.	3.5	5.5	6	24	15					12	
17.	3.5	5.4	9	29	21					14	
18.	3.4	5.4	14	49	28					11	
19.	3.3		10	27	19						
20.	3.4		4	8	6						

ARTEMISIA NOVA

Study Area Owl Draw

Date Aug. 11, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	4.6		7	10	7		2	0	1.4	
2.	14.1		12	20	10		3	35	.1	
3.	4.6		10	13	7		2	5	1.2	
4.	4.6		16	22	15		3	10	2.5	
5.	4.6	5.7	17	14	8		2	0	1.5	11.5
6.	4.5		8	18	14		3	55	1.8	
7.	4.6	5.7	15	20	14		3	12	16.0	12.2
8.	14.1	5.7	11	16	12		3	0	.4	11.0
9.	4.6	5.6	14	30	12		2	6	.3	10.6
10.	14.1	5.7	18	10	8		4	40	.1	9.0
11.	4.7	5.7	7	24	12		5	40	.9	14.0
12.	14.1		10	20	16		3	35	.1	
13.	4.7	11	26	16	4		10	.8		
14.	14.0		7	23	15		5	20	.3	
15.	4.7	5.7	10	30	27		3	2	.4	16.2
16.	4.6	5.7	7	25	12		4	40	1.1	12.8
17.	4.6	5.6	9	24	16		3	2	.6	7.5
18.	4.5	5.6	15	30	16		3	20	.2	11.0
19.	14.1		10	20	13		3	5	.6	
20.	4.6		4	7	5		2	0	1.2	

ARTEMISIA NOVA Study Area Owl Draw Date Sept. 4, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	14.2		7	10	7						
2.	4.9		12	20	10						
3.	14.2		10	13	7						
4.	14.2		16	22	15						
5.	14.1	6.3	17	14	8						
6.	14.2		8	18	14						
7.	14.1	5.9	15	20	14						
8.	14.0	5.9	11	16	12						
9.	14.1	6.0	14	30	12						
10.	14.0	6.0	18	10	8						
11.	14.1	6.1	7	24	12						
12.	4.9		10	20	16						
13.	14.0		11	26	16						
14.	14.0		7	23	15						
15.	4.9	6.0	10	30	27						
16.	14.1	6.3	7	25	12						
17.	4.9	5.8	9	24	16						
18.	4.9	5.9	15	30	16						
19.	14.0	5.9	10	20	13						
20.	5.9		4	7	5						

ARTEMISIA NOVA

Study Area Owl Draw

Date Sept. 29, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	14.4								3		
2.	14.3								.5		
3.	14.3								1		
4.	14.5								2	19	
5.	14.4								1		
6.	14.5								3		
7.	14.4	9.3							.5	13	
8.	14.4	9.3							1	13	
9.	14.3	9.2							.5	10	
10.	14.3	9.4							.5	6	
11.	14.3	9.1							1	13	
12.	14.3								.5		
13.	14.4								.5		
14.	14.4								.5		
15.	14.3	9.4							1	19	
16.	14.4	9.4							.5	12	
17.	14.3	9.4							2	15	
18.	14.3	9.2							1	11	
19.	14.4								.5		
20.	14.3								.5		

ARTEMISIA NOVA Study Area Sweetwater Date May 24, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	1.9		10	40	55		4	25			
2.	2.0		12	84	48		4	50			
3.	1.9		9			24	3	45			
4.	2.0		12			35	4	15			
5.	1.9		5			6	2	2			
6.	1.9		10	30	18		4	25			
7.	2.0		8			38	4	5			
8.	1.8		8.5			35	5	97			
9.	1.9		12	54	57		4	7			
10.	1.8		7			18	f	47			
11.	1.8		12.5			38	4	7			
12.	1.8		11	29	23		4	15			
13.	1.8		16			83	4	5			
14.	1.8		5			14	2	1			
15.	1.8		5	30	18		5	85			
16.	1.8		3			20	3	75			
17.	1.8		9	51	43		4	8			
18.	1.7		8			37	4	75			
19.	1.8		6			36	3	13			
20.	1.8		6	27	20		3	80			

ARTEMISIA NOVA Study Area Sweetwater Date June 7, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.1		10	40	55						
2.	2.2		12	84	48						
3.	2.2		9								
4.	2.2		12								
5.	2.1		5								
6.	2.2		10	30	18						
7.	2.1		8								
8.	2.2		8.5								
9.	2.1		12	54	57						
10.	2.1		7								
11.	2.2		12.5								
12.	2.2		11	29	23						
13.	2.1		16								
14.	2.2		5								
15.	2.1		5	30	18						
16.	2.1		3								
17.	2.2		9	51	43						
18.	2.2		8								
19.	2.1		6								
20.	2.3		6	27	20						

ARTEMISIA NOVA

Study Area Sweetwater

Date June 30, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.5		10	40	55						
2.	2.5		12	84	48						
3.	2.5		9								
4.	2.7		12								
5.	2.4		5								
6.	2.5		10	30	18						
7.	2.6		8								
8.	2.6		8.5								
9.	2.8		12	54	57						
10.	2.6		7								
11.	2.6		12.5								
12.	2.5		11	29	23						
13.	2.5		16								
14.	2.4		5								
15.	2.4		5	30	18						
16.	2.4		3								
17.	2.6		9	51	43						
18.	2.5		8								
19.	2.4		6								
20.	2.8		6	27	20						

ARTEMISIA NOVA Study Area Sweetwater Date July 19, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	2.7	5.4	10	40	55					
2.	3.1	5.4	12	84	48					
3.	2.8	5.2	9							
4.	2.8	5.5	12							
5.	2.7		5							
6.	2.9	5.4	10	30	18					
7.	2.9	5.1	8							
8.	2.7		8.5							
9.	2.9	5.5	12	54	57					
10.	2.8	5.3	7							
11.	2.8	5.1	12.5							
12.	2.8	5.3	11	29	23					
13.	2.9	5.4	16							
14.	2.8	5.2	5							
15.	2.5		5	30	18					
16.	2.8	5.0	3							
17.	2.9	5.3	9	51	43					
18.	2.7		8							
19.	2.8	5.4	6							
20.	3.0	5.2	6	27	20					

ARTEMISIA NOVA Study Area Sweetwater Date Aug. 7, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	4.5	5.3	12			30	4	20	.4	7.1
2.	4.3	5.4	12	45	50		5	35	1.1	14.0
3.	4.2	5.6	10	38	28		4	30	.5	12.0
4.	4.5	5.4	13	56	32		4	2	1.6	14.6
5.	4.6		6	6	4		2	0	.2	
6.	4.3	5.4	10.5	20	11		3	2	.9	9.5
7.	4.6	5.5	12.0	30	16		5	70	.7	7.4
8.	4.7		9	30	18		5	90	1.3	
9.	4.2	5.5	13	55	33		3	4	.9	10.3
10.	4.2	5.5	9			14	3	15	.4	10.0
11.	4.2	5.3	11	26	22		3	0	.6	9.4
12.	4.2	5.4	11	30	20		4	10	1.0	11.3
13.	4.2	5.3	17			50	4	2	.6	5.3
14.	4.5	5.3	6	10	8		2	0	.7	11.2
15.	4.4		6	27	13		5	70	.3	
16.	4.1	5.3	4			10	3	40	1.4	6.7
17.	4.4	5.5	10	40	23		3	5	1.6	8.2
18.	4.5		6	34	30		4	40	.6	
19.	4.2	5.6	7	28	25		3	40	1.3	7.6
20.	4.3	5.5	8	23	19		3	5	2.1	10.0

ARTEMISIA NOVA Study Area Sweetwater Date Sept. 1, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	4.6	6.0	12						.3	6	
2.	4.6	5.7	12	45	50				1	8	
3.	4.6	6.0	10	38	28				3	14	
4.	4.6	6.2	13	56	32				1	9	
5.	4.9		6	6	4				.3		
6.	4.7	6.3	10.5	20	11				1	10	
7.	4.7	5.9	12.0	30	16				.5	10	
8.	4.7		9	30	18				1		
9.	4.6	5.9	13	55	33				2	10	
10.	4.6	6.1	9						1	11	
11.	4.6	6.0	11	26	22				3	9	
12.	4.6	6.2	11	30	20				.5	11	
13.	4.6	6.1	17						1	7	
14.	4.6	6.2	6	10	8				1	11	
15.	4.6		6	27	13				.5		
16.	4.5	6.1	4						1	7	
17.	4.7	5.9	10	40	23				.5	6	
18.	4.7		6	34	30				.5		
19.	4.7	6.5	7	28	25				1	11	
20.	4.6	5.9	8	23	19				2	9	

ARTEMISIA NOVA Study Area Sweetwater Date Sept. 22, 1978

PLANT NO.	PHENO. STAGE SCORE. VEG.	REPR.	PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
1.	14.0	8.4							1	8
2.	14.1	8.6							2	14
3.	14.0	8.8							3	14
4.	14.0	8.3							1	10
5.	4.8								.5	
6.	14.2	8.4							1	9
7.	14.2	8.1							1	10
8.	14.0								2	
9.	14.0	7.8							2.5	9
10.	14.1	8.0							1	10
11.	14.1	8.4							2	9
12.	14.2	8.5							1	10
13.	14.0	8.4							1	9
14.	14.1	8.4							2	12
15.	4.9								.5	
16.	4.9	8.4							1	7
17.	14.1	8.2							3	10
18.	14.0	7.8							1	6
19.	14.0	8.4							3	11
20.	14.0	8.5							2	11

ATREMISIA TRIDENTATA

Study Area Bud Kimball

Date May 25, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.2		19	33	22		5	25			
2.	2.2		7	18	9		3	25			
3.	2.4		20	33	17		4	70			
4.	2.4		14	31	21		3	10			
5.	2.3		29	69	37		5	20			
6.	2.4		14	38	21		5	30			
7.	2.3		11	18	10		3	5			
8.	2.3		28	67	35		5	25			
9.	2.3		9	27	13		5	40			
10.	2.3		14	26	12		3	35			
11.	2.4		33	48	29		3	15			
12.	2.2		13	14	9		3	20			
13.	2.4		10	16	14		3	10			
14.	2.4		14	18	13		3	10			
15.	2.3		24	28	23		3	20			
16.	2.4		16	15	12		3	15			
17.	2.2		47	48	32		3	15			
18.	2.2		61	98	47		5	25			
19.	2.3		22	79	28		5	35			
20.	2.2		11	30	11		5	25			

ATREMISIA TRIDENTATA Study Area Bud Kimball Date June 8, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.3		19	33	22		5	25			
2.	2.3		7	18	9		3	25			
3.	2.4		20	33	17		4	70			
4.	2.5		14	31	21		3	10			
5.	3.4		29	69	37		5	20			
6.	2.3		14	38	21		5	30			
7.	2.3		11	18	10		3	5			
8.	2.3		28	67	35		5	25			
9.	2.3		9	27	13		5	40			
10.	2.3		14	26	12		3	35			
11.	2.3		22	48	29		3	15			
12.	2.3		13	15	9		3	20			
13.	2.4		10	16	14		3	10			
14.	2.7		14	18	13		3	10			
15.	2.4		24	28	23		3	20			
16.	2.5		16	15	12		3	15			
17.	2.4		47	48	32		3	15			Plant dead (replaced)
18.	2.3		61	98	47		5	25			
19.	2.6		22	79	28		5	35			
20.	2.3		11	30	11		5	25			

ATREMISIA TRIDENTATA Study Area Bud Kimball Date June 28, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT.	PLANT LNGTH.	PLANT WIDTH	PLANT DIAM.	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH.	NEW SEED STALK LNGTH
	VEG.	REPR.	cm	cm	cm	cm			cm	cm
1.	3.2	5.0	19	33	22		5	25		
2.	3.5		7	18	9		3	25		
3.	2.6		20	33	17		4	70		
4.	2.7	5.0	14	31	21		3	10		
5.	2.7	5.0	29	69	37		5	20		
6.	2.4	5.0	14	38	21		5	30		
7.	3.0		11	18	10		3	5		
8.	2.5	5.0	28	67	35		5	25		
9.	2.5		9	27	13		5	40		
10.	2.5		14	26	12		3	35		
11.	2.6	5.0	22	48	29		3	15		
12.	2.7		13	15	9		3	20		
13.	2.6		10	16	14		3	10		
14.	3.0		14	18	13		3	10		
15.	3.2	5.0	24	28	23		3	20		
16.	3.1		16	15	12		3	15		
17.	3.2	5.0	47	48	32		3	15		
18.	3.2	5.0	61	98	47		5	25		
19.	3.1	5.0	22	98	47		5	35		
20.	2.9		11	30	11		5	25		

ARTEMISIA TRIDENTATA Study Area Bud Kimball Date July 19, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	3.3	5.0	19	33	22		5	25			
2.	3.0		7	18	9		3	25			
3.	3.2		20	33	17		4	70			
4.	3.1	5.0	14	31	21		3	10			
5.	3.1	5.0	29	69	37		5	20			
6.	3.0	5.0	14	38	21		5	30			
7.	3.2		11	18	10		3	5			
8.	3.1	5.0	28	67	35		5	25			
9.	3.1		9	27	13		5	40			
10.	3.1	5.0	14	26	12		3	35			
11.	3.2	5.0	22	48	29		3	15			
12.	3.1		13	15	9		3	20			
13.	3.2		10	16	14		3	10			
14.	3.4		14	18	13		3	10			
15.	3.4	5.0	24	28	23		3	20			
16.	3.4		16	15	12		3	15			
17.	3.4	5.0	47	48	32		3	15			
18.	3.4	5.0	61	98	47		5	25			
19.	3.4	5.0	22	98	47		5	35			
20.	3.3		11	30	11		5	25			

ARTEMISIA TRIDENTATA Study Area Bud Kimball Date Aug. 10, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	4.5	5.5	13	20	12		3	5	4.0	
2.	4.5		8	12	10		2	2	.5	
3.	4.6		20	38	12		4	80	3.8	
4.	14.1	5.6	15	28	16		3	0	2.0	9.0
5.	4.5	5.4	30	65	34		4	12	2.0	4.5
6.	4.5	5.5	14	30	20		4	10	4.2	7.5
7.	4.5		12			10	2	0	4.6	
8.	14.0	5.6	28	65	36		4	7	1.3	10.6
9.	4.5		10	26	14		2	30	1.4	
10.	14.0	5.6	16	20	8		3	14	5.2	9.0
11.	4.5	5.6	10	37	30		3	2	3.5	8.2
12.	4.5		12	9	8		2	0	2.6	
13.	4.5		11			12	2	0	5.2	
14.	4.5		20	20	16		2	0	10.0	
15.	14.0	5.5	21	27	20		3	4	4.0	17.4
16.	14.0		15			10	2	4	5.5	
17.	14.0	5.6	48	47	30		4	3	7.0	14.4
18.	14.2	5.6	57	78	45		4	1	2.3	19.2
19.	4.5	5.6	22	26	20		4	5	3.4	16.2
20.	14.1		14	20	6		2	5	4.0	

ARTEMISIA TRIDENTATA

Study Area Bud Kimball

Date Sept. 2, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	14.3	6.0									
2.	14.3										
3.	14.2										
4.	14.4	5.9									
5.	14.3	5.9									
6.	14.0	6.0									
7.	14.3										
8.	14.3	5.9									
9.	14.4										
10.	14.2	6.3									
11.	14.3	6.1									
12.	14.2										
13.	14.2										
14.	14.1										
15.	14.1	5.9									
16.	14.1										
17.	14.2	6.0									
18.	14.2	6.1									
19.	14.1	6.0									
20.	14.2										

ARTEMISIA TRIDENTATA Study Area Bud Kimball Date Nov. 1, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	17.3	13.2									
2.	14.4										
3.	14.9	Plant 97% dead.									
4.	14.6	13.4									
5.	14.6	13.4									
6.	14.4	11.4									
7.	14.5										
8.	14.6	13.5									
9.	14.5										
10.	14.3	15.2									
11.	14.4	13.4									
12.	14.4										
13.	14.4										
14.	14.4										
15.	14.5	15.2									
16.	14.4										
17.	14.5	13.8									
18.	14.4	15.1									
19.	14.4	15.1									
20.	14.5										

ARTEMISIA TRIDENTATA Study Area Cedar Mountain Date April 29, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	1.3										
2.	1.3										
3.	1.3										
4.	1.3										
5.	1.3										
6.	1.3										
7.	1.3										
8.	1.3										
9.	1.5										
10.	1.7										
11.	1.3										
12.	1.7										
13.	1.5										
14.	1.5										
15.	1.5										
16.	1.5										
17.	1.5										
18.	1.7										
19.	1.5										
20.	1.5										

ARTEMISIA TRIDENTATA Study Area Cedar Mountain Date May 22, 1978

PLANT NO.	PHENO. STAGE SCORE VEG.	REPR.	PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
1.	2.9		8	15	11		2	30		
2.	2.6		14	38	13		4	60		
3.	2.6		31	33	22		5	10		
4.	2.7		6	9	7		2	10		
5.	2.9		13	24	12		3	10		
6.	2.9		17	21	18		2	10		
7.	2.6		29	46	45		5	20		
8.	2.9		22	29	23		3	10		
9.	2.7		32	88	70		5	40		
10.	2.5		49	94	73		5	25		
11.	2.5		42	89	59		5	20		
12.	2.5		5	10	7		2	10		
13.	2.4		43	91	84		5	10		
14.	2.6		22	39	28		3	5		
15.	2.3		13	33	12		3	15		
16.	2.6		17	28	17		3	30		
17.	2.3		39	66	51		5	25		
18.	2.9		11	12	9		2	0		
19.	2.5		35	29	15		5	40		
20.	2.4		38	72	56		5	15		

ARTEMISIA TRIDENTATA Study Area Cedar Mountain Date June 6 , 1978

PLANT NO.	PHENO. STAGE SCORE. VEG.	PHENO. STAGE SCORE. REPR.	PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
1.	2.9		8	15	11		2	30		
2.	2.7		14	38	13		4	60		
3.	2.6		31	33	22		5	10		
4.	2.7		6	9	7		2	10		
5.	2.9		13	24	12		3	10		
6.	2.9		17	21	18		2	10		
7.	2.8		29	46	45		5	20		
8.	2.9		22	29	23		3	10		
9.	2.8		32	88	70		5	40		
10.	2.7		49	94	73		5	25		
11.	2.7		42	89	59		5	20		
12.	2.6		5	10	7		2	10		
13.	2.7		43	91	84		5	10		
14.	2.7		22	39	28		3	5		
15.	2.6		13	33	12		3	5		
16.	2.9		17	28	17		3	30		
17.	2.5		39	66	51		5	25		
18.	2.9		11	12	9		2	0		
19.	2.5		35	29	15		5	40		
20.	2.4		38	72	56		5	15		

ATREMISIA TRIDENTATA Study Area Cedar Mountain Date June 26, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	3.2		8	15	11		2	30		
2.	3.2		14	38	13		4	60		
3.	3.0		31	33	22		5	10		
4.	3.0		6	9	7		2	10		
5.	3.1		13	24	12		3	10		
6.	3.3		17	21	18		2	10		
7.	3.1		29	46	45		5	20		
8.	3.3		22	29	23		3	10		
9.	3.3		32	88	70		5	40		
10.	2.9		49	94	73		5	25		
11.	3.0		42	89	59		5	20		
12.	3.2		5	10	7		2	10		
13.	3.1		43	91	84		5	10		
14.	3.1		22	39	28		3	5		
15.	2.9		13	33	12		3	5		
16.	3.0		17	28	17		3	30		
17.	3.1		39	66	51		5	25		
18.	3.3		11	12	9		2	0		
19.	3.2		35	29	15		5	40		
20.	3.2		38	72	56		5	15		

ARTEMISIA TRIDENTATA Study Area Cedar Mountain Date July 17, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER- CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	3.4	5.1	8	15	11		2	30			
2.	3.5	5.1	14	38	13		4	60			
3.	3.5	5.1	31	33	22		5	10			
4.	3.4	5.2	6	9	7		2	10			
5.	3.5	5.1	13	24	12		3	10			
6.	3.6	5.0	17	21	18		2	10			
7.	3.6	5.1	29	46	45		5	20			
8.	3.6	5.0	22	29	23		3	10			
9.	3.6	5.0	32	88	70		5	40			
10.	3.6	5.1	49	94	73		5	25			
11.	3.3	5.0	42	89	59		5	20			
12.	3.3	5.0	5	10	7		2	10			
13.	3.2	5.0	43	91	84		5	10			
14.	3.5	5.0	22	30	28		3	5			
15.	3.6	5.0	13	33	12		3	5			
16.	3.4	5.0	17	28	17		3	30			
17.	3.4	5.0	39	66	51		5	25			
18.	3.5		11	12	9		2	0			
19.	3.5	5.1	35	29	15		5	40			
20.	3.5	5.0	38	72	56		5	15			

ARTEMISIA TRIDENTATA Study Area Cedar Mountain Date Aug. 8, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	14.1	5.6	5			8	2	5	2.4	12.4
2.	14.1	5.5	10	30	17		4	55	3.1	11.3
3.	14.2	5.5	26	30	18		3	5	3	18.2
4.	14.2		6	8	5		2	0	2.2	
5.	14.2	5.6	13	20	10		2	10	5	17.6
6.	14.2	5.7	15			15	3	0	2.8	16.2
7.	14.2	5.8	31	40	20		3	10	3	18.6
8.	14.2	5.6	18	24	18		3	5	4.2	21.8
9.	14.3	5.7	32	68	26		4	30	2.4	21.1
10.	14.2	5.8	37	80	70		4	3	2.7	22.0
11.	4.5	5.4	28	70	48		4	5	1.0	14.2
12.	4.5	5.4	5	7	4		2	0	3.4	13.1
13.	4.5	5.8	36	65	55		4	1	1.1	10.6
14.	14.2	5.4	20	30	22		3	0	3.3	16.2
15.	14.0	5.6	13	26	17		3	35	4.2	19.0
16.	14.3	5.6	18	30	10		3	12	6.3	24.2
17.	14.3	5.2	39	60	45		4	15	2.9	16.0
18.	14.2		20			7	2	0	14	
19.	14.0	5.6	34	35	14		3	30	2.8	17.0
20.	14.2	5.5	35	65	50		4	1	2.0	21.0

ARTEMISIA TRIDENTATA Study Area Cedar Mountain Date Aug. 30, 1978

PLANT NO.	PHENO. STAGE SCORE VEG.	REPR.	PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
1.	14.3	5.8	5			8	2	5	2.4	12.4
2.	14.3	5.8	10	30	17		4	55	3.1	11.3
3.	14.2	6.0	26	30	18		3	5	3	18.2
4.	14.3		6	8	5		2	0	2.2	
5.	14.3	5.8	13	20	10		2	10	5	17.6
6.	14.3	5.8	15			15	3	0	2.8	16.2
7.	14.3	5.8	31	40	20		3	10	3	18.6
8.	14.3	5.8	18	24	18		3	5	4.2	21.8
9.	14.3	5.9	32	68	26		4	30	2.4	21.1
10.	14.2	6.0	37	80	70		4	3	2.7	22.0
11.	14.1	5.9	28	70	48		4	5	1.0	14.2
12.	4.8	5.8	5	7	4		2	0	3.4	13.1
13.	4.9	7.2	36	65	55		4	1	1.1	10.6
14.	14.3	5.9	20	30	22		3	0	3.3	16.2
15.	14.4	5.7	13	26	17		3	35	4.2	19.0
16.	14.4	5.7	18	30	10		3	12	6.3	24.2
17.	14.3	5.3	39	60	45		4	15	2.9	16.0
18.	14.4		20			7	2	0	14	
19.	14.4	5.9	34	35	14		3	30	2.8	17.0
20.	14.4	5.7	35	65	50		4	1	2.0	21.0

ARTEMISIA TRIDENTATA

Study Area Cumberland #3

Date May 23, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	2.2		43	29	19		5	40		
2.	2.3		25	27	16		5	30		
3.	2.5		28	28	25		5	30		
4.	2.3		39	72	48		4	65		
5.	2.1		49	50	32		5	65		
6.	2.2		48	28	16		4	75		
7.	2.5		37	38	29		5	25		
8.	2.0		44	29	13		4	90		
9.	2.0		24	39	22		4	75		
10.	2.0		71	73	42		4	60		
11.	2.0		33			29	5	45		
12.	2.3		23	22	18		5	40		
13.	2.1		66	140	61		5	40		
14.	2.3		62	61	58		5	20		
15.	2.2		54	46	26		5	50		
16.	2.3		56	70	27		5	60		
17.	2.3		83	101	82		5	20		
18.	2.3		42	54	27		5	30		
19.	2.4		58	56	33		5	35		
20.	2.4		35	56	24		5	60		

ARTEMISIA TRIDENTATA Study Area Cumberland #3 Date June 6, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.5		43	29	19		5	40			
2.	2.5		25	27	16		5	30			
3.	2.6		28	28	25		5	30			
4.	2.7		39	72	48		4	65			
5.	2.5		49	50	32		5	65			
6.	2.5		48	28	16		4	75			
7.	2.5		37	38	29		5	25			
8.	2.5		44	29	13		4	90			
9.	2.5		24	39	22		4	75			
10.	2.4		71	73	42		4	60			
11.	2.4		33			29	5	45			
12.	2.5		23	22	18		5	40			
13.	2.4		66	140	61		5	40			
14.	2.7		62	61	58		5	20			
15.	2.5		54	46	26		5	50			
16.	2.4		56	70	27		5	60			
17.	2.5		83	101	82		5	20			
18.	2.5		42	54	27		5	30			
19.	2.5		58	46	33		5	35			
20.	2.5		35	56	24		5	60			

ARTEMISIA TRIDENTATA   Study Area Cumberland #3   Date June 26, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	2.8	5.0	43	29	19		5	40	3.5	18.5
2.	2.8	5.0	25	27	16		5	30	5.0	14.0
3.	2.8	5.0	28	28	25		5	30	6.5	12.0
4.	2.9	5.0	39	72	48		4	65	6.0	16.0
5.	2.8	5.0	49	50	32		5	65	5.3	10.5
6.	2.7	5.0	48	28	16		4	75	6.0	7.5
7.	2.8	5.0	37	38	29		5	25	7.0	15.5
8.	2.5	5.0	44	29	13		4	90	1.5	6.3
9.	2.6		24	29	22		4	75	5.5	
10.	2.6	5.0	71	73	42		4	60	5.5	11.5
11.	2.8	5.0	33			29	5	45	2.0	6.0
12.	2.8	5.0	23	22	18		5	40	5.5	11.3
13.	2.8	5.0	66	140	61		5	40	3.5	11.5
14.	2.8	5.0	62	61	58		5	20	4.0	14.5
15.	2.8	5.0	54	46	26		5	50	3.5	10.0
16.	2.6	5.0	56	70	27		5	60	3.0	14.5
17.	2.8	5.0	83	101	82		5	20	4.8	15.1
18.	2.5	5.0	42	54	27		5	30	3.5	9.0
19.	2.7	5.0	58	46	33		5	35	2.0	12.3
20.	2.8	5.0	35	56	24		5	60	5.0	14.5

ARTEMISIA TRIDENTATA Study Area Cumberland #3 Date July 18, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	3.4	5.1	43	20	10		5	40	3.5	18.5
2.	3.5	5.3	25	27	16		5	30	5.0	14.0
3.	3.3	5.2	28	28	25		5	30	6.5	12.0
4.	3.5	5.1	39	72	48		4	65	6.0	16.0
5.	3.3	5.1	49	50	32		5	65	5.3	10.5
6.	3.4	5.2	48	28	16		4	75	6.0	7.5
7.	3.5	5.2	37	38	29		5	25	7.0	15.5
8.	3.2	5.1	44	29	13		4	90	1.5	6.3
9.	3.2	5.1	24	29	22		4	75	5.5	
10.	3.4	5.2	71	73	42		4	60	5.5	11.5
11.	3.2	5.2	33			29	5	45	2.0	6.0
12.	3.3	5.3	23	22	18		5	40	5.5	11.3
13.	3.3	5.3	66	140	61		5	40	3.5	11.5
14.	3.3	5.3	62	61	58		5	20	4.0	14.5
15.	3.3	5.3	54	46	26		5	50	3.5	10.0
16.	3.4	4.3	56	70	27		5	60	3.0	14.5
17.	3.4	5.4	83	101	82		5	20	4.8	15.1
18.	3.4	5.4	42	54	27		5	30	3.5	9.0
19.	3.3	5.3	58	46	33		5	35	2.0	12.3
20.	3.2	5.2	35	56	24		5	60	5.0	14.5

ARTEMISIA TRIDENTATA Study Area Cumberland #3 Date Aug. 8, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	14.1	5.5	61	50	45		4	42	3.1	16.0
2.	14.2	5.6	28	22	16		3	15	1.7	7.5
3.	14.3	5.7	28			10	3	35	2.5	12.2
4.	14.2	5.8	44	45	28		4	42	4.2	18.2
5.	14.2	5.5	53	45	30		4	85	2.7	12.8
6.	14.3	6.1	50	29	24		5	70	2.3	12.2
7.	14.5	6.1	40	30	24		3	2	4.6	17.5
8.	14.3	5.7	46	46	30		4	95	3.1	9.3
9.	14.1	6.2	24	30	15		5	8	1.1	7.2
10.	14.1	5.9	60	65	55		4	55	4.5	17.8
11.	14.1	5.7	30	30	28		4	60	3	8.6
12.	14.2		22	15	12		4	25	6	
13.	14.3	5.7	73	60	40		4	15	2.7	15.5
14.	14.1	5.8	54	110	100	34	5	75	2.3	7.0
15.	14.2	5.8	55	54		34	5	73	2.2	15.2
16.	14.2	5.8	55	70	40		5	73	2.2	15.2
17.	14.2	5.9	85	95	65		4	23	3.1	17.2
18.	14.2	6.0	38	40	20		4	40	4	17.5
19.	14.2	5.7	58	37	33		4	45	4.2	13.7
20.	4.6	5.7	38	33	22		4	20	3.7	15.2

ARTEMISIA TRIDENTATA Study Area Cumberland #3 Date Aug. 30, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT.	PLANT LNGTH.	PLANT WIDTH	PLANT DIAM.	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH.	NEW SEED STALK LNGTH	
	VEG.	REPR.	cm	cm	cm	cm			cm	cm	
1.	14.1	5.9	61	50	45						
2.	14.2	7.2	28	22	16						
3.	14.2	6.5	28								
4.	14.2	5.9	44	45	28						
5.	14.2	5.8	53	45	30						
6.	14.2	6.0	50	29	24						
7.	14.2	5.8	40	30	24						
8.	14.7	5.7	46	46	30						
9.	14.3	5.9	24	30	15						
10.	14.2	5.9	60	65	55						
11.	14.3	5.7	30	30	28						
12.	14.3		22	15	12						
13.	14.3	5.9	73	60	40						
14.	14.3	6.0	54	110	100						
15.	14.2	5.8	54								
16.	14.3	5.8	55	70	40						
17.	14.2	5.9	85	95	65						
18.	14.1	7.2	38	40	29						
19.	14.4	6.0	58	37	33						
20.	14.2	5.7	38	33	22						

ARTEMISIA TRIDENTATA Study Area Cumberland #3 Date Nov. 4, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	14.4	13.6	61	50	45						
2.	14.4	13.4	28	22	16						
3.	14.4	13.8	28								
4.	14.4	13.7	44	45	28						
5.	14.4	13.7	53	45	30						
6.	14.4	13.7	50	29	24						
7.	14.3	13.5	40	30	24						
8.	14.3	15.2	46	46	30						
9.	14.4	13.7	24	30	15						
10.	14.5	13.5	60	65	55						
11.	14.3	13.4	30	30	28						
12.	14.5	13.5	22	15	12						
13.	14.4	13.5	73	60	40						
14.	14.6	15.1	54	110	100						
15.	14.6	13.7	54								
16.	14.4	13.5	55	70	40						
17.	14.5	13.6	85	95	65						
18.	14.4	13.5	38	40	29						
19.	14.4	13.8	58	37	33						
20.	14.5	13.8	38	33	22						

ARTEMISIA TRIDENTATA Study Area Demer Date May 25, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	1.8		24	36	15		3	25		
2.	1.9		28	47	33		3	10		
3.	1.5		17	24	13		5	65		
4.	1.6		14	36	27		5	45		
5.	1.4		16	40	28		5	25		
6.	1.5		24	39	23		5	35		
7.	1.3		5	26	9		4	50		
8.	1.4		18	18	15		3	15		
9.	1.7		27	43	32		5	20		
10.	1.8		41	49	44		3	10		
11.	1.7		27	48	37		3	15		
12.	1.4		21	47	42		4	5		
13.	1.4		22	68	21		4	75		
14.	1.6		33	34	21		5	25		
15.	1.6		49	34	32		5	30		
16.	1.7		12	18	16		5	40		
17.	1.5		11	40	22		3	10		
18.	1.7		21	51	40		5	10		
19.	1.5		18	35	11		4	60		
20.	1.7		17	39	25		5	20		

ARTEMISIA TRIDENTATA Study Area Demer Date June 8, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.3		24	36	15						
2.	2.5		28	47	33						
3.	2.5		17	24	13						
4.	2.6		14	36	27						
5.	2.3		16	40	28						
6.	2.3		24	39	23						
7.	2.2		5	26	9						
8.	2.4		18	18	15						
9.	2.3		27	43	32						
10.	2.3		41	49	44						
11.	2.3		27	48	37						
12.	2.2		21	47	42						
13.	2.2		22	68	21						
14.	2.3		33	34	32						
15.	2.4		49	34	32						
16.	2.2		12	18	16						
17.	2.3		11	40	22						
18.	2.4		21	51	40						
19.	2.3		18	35	11						
20.	2.3		17	39	25						

ARTEMISIA TRIDENTATA   Study Area Demer   Date June 28, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER- CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	3.3	5.1	24	36	15					
2.	3.3	5.0	28	47	33					
3.	3.3	5.0	17	24	13					
4.	3.3	5.0	14	36	27					
5.	3.2	5.0	16	40	38					
6.	3.3	5.0	24	39	23					
7.	3.2		5	26	9					
8.	3.2	5.0	18	18	15					
9.	3.3	5.1	27	43	32					
10.	3.3	5.0	41	49	44					
11.	3.5	5.0	27	48	37					
12.	3.3	5.0	21	47	42					
13.	3.2	5.0	22	68	21					
14.	3.4	5.1	33	34	21					
15.	3.4	5.0	49	34	32					
16.	3.2	5.0	12	18	16					
17.	3.2	5.0	11	40	22					
18.	3.4	5.1	21	51	40					
19.	3.4	5.0	18	35	11					
20.	3.3	5.1	17	39	25					

ARTEMISIA TRIDENTATA   Study Area Demer   Date July 20, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	4.1	5.0	20	30	10						
2.	4.5	5.0	27	46	30						
3.	3.7		15								
4.	4.5	5.0	14	24	18						
5.	4.4	5.0	17	40	23						
6.	4.4	5.0	20	23	15						
7.	3.9	5.0	5	10	3						
8.	4.2	5.0	20	40	23						
9.	4.2	5.0	26	35	25						
10.	4.5	5.0	40	50	34						
11.	4.2	5.0	36	50	30						
12.	4.5	5.0	33	50	30						
13.	4.3	5.0	26	60	40						
14.	4.4	5.0	32	30	10						
15.	4.5	5.0	49	30	23						
16.	3.9	5.0	15	14	12						
17.	4.1		12	35	20						
18.	4.5	5.0	22	48	40						
19.	3.9	5.0	15	20	10						
20.	4.3	5.0	18	30	20						

ARTEMISIA TRIDENTATA Study Area Demer Date Aug. 9, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	14.1	5.7	20	30	10		3	12	1.5	15.2
2.	14.2	5.7	27	46	30		4	0	3.5	21.4
3.	14.1		15			20	4	75	1.1	
4.	4.5	5.6	14	24	18		3	30	2.0	18.0
5.	14.1	5.6	17	40	23		4	45	2.0	9.1
6.	14.1	5.5	20	23	15		4	70	1.2	4.2
7.	4.6	5.3	5	10	3		2	10	1.8	4.6
8.	14.2	5.7	20	40	23		4	18	1.8	15.0
9.	14.3	5.6	26	35	25		4	7	1.4	15.8
10.	14.2	5.5	40	50	34		3	5	2.5	16.5
11.	14.1	5.6	36	50	30		3	2	6.5	23.2
12.	14.1	5.5	22	40	30		3	2	2.8	12.0
13.	14.3		26	60	40		5	96	1.3	
14.	14.1	5.6	32	30	10		4	5	2.2	18.2
15.	14.2	5.8	49	30	24		4	23	3.5	18.6
16.	14.1	5.5	15	14	12		4	35	2.5	14.5
17.	4.6	5.6	12	35	20		2	0	2.0	3.4
18.	14.0	5.4	22	48	40		4	5	3.0	18.0
19.	4.7	5.5	15	20	10		4	20	3.8	14.2
20.	14.3	5.7	18	30	20		4	12	4.6	17.5

ARTEMISIA TRIDENTATA Study Area Demer Date Sept. 2, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	14.2	5.7									
2.	14.3	5.6									
3.	14.2										
4.	14.2	5.8									
5.	14.2	5.7									
6.	14.1	5.9									
7.	14.2	5.7									
8.	14.3	5.7									
9.	14.3	5.9									
10.	14.3	5.8									
11.	14.2	6.0									
12.	14.1	5.9									
13.	14.4										
14.	14.2	6.0									
15.	14.2	5.9									
16.	14.2	5.6									
17.	14.2										
18.	14.1	5.7									
19.	14.2	5.9									
20.	14.3	6.0									

ARTEMISIA TRIDENTATA Study Area Demer Date Nov. 1, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	14.6	13.7								
2.	14.5	13.7								
3.	14.6									
4.	14.4	13.6								
5.	14.4	13.6								
6.	14.4	13.7								
7.	14.4	13.6								
8.	14.4	13.6								
9.	14.5	15.1								
10.	14.3	13.5								
11.	14.5	13.5								
12.	14.4	13.5								
13.	14.6	13.7								
14.	14.4	13.8								
15.	14.4	13.8								
16.	14.4	13.5								
17.	14.5									
18.	14.5	13.5								
19.	14.5	13.6								
20.	14.6	13.8								

ARTEMISIA TRIDENTATA Study Area Farson Date May 28, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.2		20	55	43		4	25			
2.	2.2		10	38	31		4	20			
3.	2.2		31	74	36		4	30			
4.	2.1		17	25	22		4	35			
5.	2.1		30	57	51		4	60			
6.	3.1		24	35	33		4	60			
7.	2.1		12	25	21		4	15			
8.	2.2		26	65	34		4	20			
9.	2.2		14	41	18		4	10			
10.	2.1		17	24	23		4	40			
11.	2.2		21	69	45		4	15			
12.	2.1		24	54	46		3	10			
13.	2.2		21	48	19		4	15			
14.	2.2		19	21	14		4	50			
15.	2.1		14	25	23		3	15			
16.	2.2		21	47	29		3	15			
17.	2.1		14	27	18		5	95			Dying
18.	2.2		21	35	31		4	55			
19.	2.2		21	35	21		4	55			
20.	2.2		18	40	21		4	35			

ARTEMISIA TRIDENTATA Study Area Farson Date June 7, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.4		20	55	43						
2.	2.3		10	38	31						
3.	2.4		31	74	36						
4.	2.3		17	25	22						
5.	2.3		30	57	51						
6.	2.4		24	35	33						
7.	2.3		12	25	21						
8.	2.4		26	65	34						
9.	2.3		14	41	18						
10.	2.3		17	24	23						
11.	2.4		21	69	45						
12.	2.4		24	54	46						
13.	2.3		21	48	19						
14.	2.3		24	48	33						
15.	2.3		19	21	14						
16.	2.3		14	25	23						
17.	2.4		21	47	29						
18.	2.3		15	27	18						
19.	2.3		21	35	21						
20.	2.3		18	40	21						

ARTEMISIA TRIDENTATA Study Area Farson Date June 27, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.5		20	55	43						
2.	3.1		10	38	31						
3.	2.8		31	74	36						
4.	2.7		17	25	22						
5.	3.1		30	57	51						
6.	3.0		24	35	33						
7.	2.8		12	25	21						
8.	2.8		26	65	34						
9.	2.9		14	41	18						
10.	2.6		17	24	23						
11.	3.0		21	69	45						
12.	2.7		24	54	46						
13.	3.1		21	48	19						
14.	3.0		24	48	33						
15.	2.8		19	21	14						
16.	3.0		14	25	23						
17.	2.9		21	47	29						
18.	2.9		15	27	18						
19.	3.1		21	35	21						
20.	3.1		18	40	21						

ARTEMISIA TRIDENTATA Study Area Farson Date July 18, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	3.2	5.0	20	55	43						
2.	3.2	5.1	10	38	31						
3.	3.2	4.0	31	74	36						
4.	3.2		17	25	22						
5.	3.2	5.0	30	57	51						
6.	3.0	5.0	24	35	33						
7.	3.0		12	25	21						
8.	2.9		26	65	34						
9.	3.2	5.0	14	41	18						
10.	2.8	5.0	17	24	23						
11.	3.0	5.1	21	69	45						
12.	3.2	5.1	24	54	46						
13.	3.1	5.0	21	48	19						
14.	3.3	5.0	24	48	33						
15.	3.3	5.1	19	21	14						
16.	3.2		14	25	23						
17.	3.2		21	47	29						
18.	3.2		14	27	18						
19.	3.3	5.1	21	35	21						
20.	3.1		18	40	21						

ARTEMISIA TRIDENTATA Study Area Farson Date Aug. 16, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	4.6	5.6	21	56	28		4	10	3	15
2.	4.7		9			24	3	5	1	
3.	4.7	5.6	33	70	55		4	15	2	6
4.	4.8		22	26	18		3	20	2	
5.	4.8	5.5	39	70	52		4	25	3	13
6.	4.8	5.6	26	58	26		4	15	5	9
7.	4.9		13			24	3	5	2	
8.	4.8		28	66	34		4	5	3	
9.	4.6	5.6	21	46	20		4	2	3	13
10.	4.8	5.7	26	38	22		4	30	1	10
11.	4.7	5.8	38	59	35		4	5	1	12
12.	4.7	5.8	27	63	50		3	2	4	15
13.	4.8	5.5	34	49	25		4	10	2	11
14.	4.7	5.7	42	39	29		4	10	4	18
15.	4.8	5.7	25	29	14		4	15	2	10
16.	4.8		15	24	15		3	15	2	
17.	4.8		18	52	31		3	5	1	
18.	4.7		17	51	29		4	35	1	
19.	4.8		25	43	26		4	30	5	
20.	4.8		19	41	18		4	20	5	

ARTEMISIA TRIDENTATA Study Area Farson Date Sept. 1, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	14.2	6.2									
2.	14.1										
3.	14.2	6.8									
4.	14.0										
5.	14.3	5.9									
6.	14.3	6.3									
7.	14.0										
8.	14.4										
9.	14.3	7.2									
10.	14.2	7.2									
11.	14.2	6.4									
12.	14.3	6.8									
13.	14.4	6.0									
14.	14.4	7.2									
15.	14.3	6.4									
16.	14.4										
17.	14.4										
18.	14.2										
19.	14.4										
20.	14.2										

ARTEMISIA TRIDENTATA Study Area Farson Date Nov. 3, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	14.3	13.4									
2.	14.4	13.7									
3.	14.6	13.7									
4.	14.5										
5.	14.5	15.1									
6.	14.8	15.2									
7.	14.5										
8.	14.6										
9.	14.5	15.1									
10.	14.4	13.8									
11.	14.6	15.2									
12.	14.4	13.6									
13.	14.4	13.4									
14.	14.6	15.1									
15.	14.5	15.1									
16.	14.4										
17.	14.5										
18.	14.5										
19.	14.4	13.6									
20.	14.6										

ARTEMISIA TRIDENTATA

Study Area Horse creek

Date April 29, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	1.2										
2.	1.2										
3.	1.3										
4.	1.2										
5.	1.3										
6.	1.3										
7.	1.2										
8.	1.2										
9.	1.2										
10.	1.2										
11.	1.3										
12.	1.0										
13.	2.2										
14.	1.4										
15.	2.3										
16.	1.3										
17.	2.3										
18.	2.2										
19.	17.0										
20.	2.3										

ARTEMISIA TRIDENTATA

Study Area Horse Creek

Date May 25, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.4		37	42	32		4	75			
2.	2.4		26	66	32		5	60			
3.	2.5		43	62	46		5	35			
4.	2.4		61	75	54		5	15			Dead replaced.
5.	2.3		14	19	11		5	15			
6.	2.2		14	18	15		5	40			
7.	2.3		51	65	30		5	25			
8.	2.3		7	22	10		4	50			
9.	2.2		23	37	7		5	65			
10.	2.3		19	26	15		5	15			
11.	2.3		24	47	22		3	15			
12.	2.4		13	18	10		4	25			
13.	2.5		21	20	14		3	25			
14.	2.3		39	41	27		5	45			
15.	2.4		25	31	22		3	5			
16.	2.3		37	31	32		5	30			
17.	2.5		51	35	30		5	30			Dead replaced.
18.	2.3		27	25	12		4	65			Dead replaced.
19.	2.4		25	67	25		5	30			
20.	2.3		18	31	10		4	85			

ARTEMISIA TRIDENTATA Study Area Horse creek Date June 8, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.4		37	42	32						
2.	2.4		26	66	32						
3.	2.4		43	62	46						
4.	2.5		61	75	54						
5.	2.8		14	19	11						
6.	2.5		14	18	15						
7.	2.6		51	65	30						
8.	2.4		7	22	10						
9.	2.4		23	37	7						
10.	2.7		19	26	15						
11.	2.6		24	47	22						
12.	2.7		13	18	10						
13.	2.8		21	20	14						
14.	2.7		39	41	27						
15.	2.7		25	31	22						
16.	2.7		37	31	32						
17.	2.6		51	35	30						
18.	2.5		27	25	12						
19.	2.5		25	67	25						
20.	2.7		18	31	10						

ARTEMISIA TRIDENTATA

Study Area Horse Creek

Date June 30, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	3.2		37	42	32					
2.	2.3		26	66	32					
3.	3.3		43	62	46					
4.	3.3		61	75	54					
5.	3.3		14	19	11					
6.	2.5		14	18	15					
7.	3.1		51	65	30					
8.	3.4		7	22	10					
9.	3.0		23	37	7					
10.	3.2		19	26	15					
11.	3.0		24	47	22					
12.	3.3		13	18	10					
13.	3.1		21	20	14					
14.	3.4		39	41	27					
15.	3.3		25	31	22					
16.	3.3		27	31	32					
17.	3.3		51	35	30					
18.	3.0		27	25	12					
19.	3.0		25	67	25					
20.	3.1		18	31	10					

ARTEMISIA TRIDENTATA Study Area Horse creek Date July 20, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	3.4	5.1	37	42	32					
2.	3.3	5.1	26	66	32					
3.	3.5	5.0	43	62	46					
4.	3.5	5.0	61	75	54					
5.	3.6	5.1	14	19	11					
6.	3.4		14	18	15					
7.	3.5	5.1	51	65	30					
8.	3.6	5.0	7	22	10					
9.	3.3		23	37	7					
10.	3.5		19	26	15					
11.	3.4		24	47	22					
12.	3.6	5.0	13	18	10					
13.	3.5		21	20	14					
14.	3.4	5.0	39	41	27					
15.	3.6	5.0	25	31	22					
16.	3.6	5.0	27	31	32					
17.	3.6	5.0	51	35	30					
18.	3.3	5.0	27	25	12					
19.	3.4	5.0	25	67	25					
20.	3.4	5.1	18	31	10					

ARTEMISIA TRIDENTATA

Study Area Horse creek

Date Aug. 10, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	4.4	5.5	32	70	32		5	65	1.8	18.0
2.	4.5	5.6	29	50	30		5	72	2.2	18.3
3.	4.5	5.7	35	80	40		4	12	2.8	14.5
4.	14.1	5.7	58	64	40		4	6	4.0	19.0
5.	4.6	5.7	14	17	13		2	0	5.5	24.5
6.	4.5		13	15	8		3	25	1.5	
7.	14.0	5.7	56	60	35		4	8	3.0	17.0
8.	14.1		10	18	8		3	35	2.1	
9.	14.2		26	53	17		5	80	2.1	
10.	14.1		19	20	12		3	5	7.0	
11.	4.6		25	40	20		4	3	3.8	
12.	14.0	5.6	14	20	12		3	4	6.5	16.0
13.	14.1		26	18	10		2	3	11.0	
14.	4.7	5.5	47	40	25		5	60	3.3	20.8
15.	14.1	5.6	34	25	20		3	0	10.0	22.7
16.	14.1	5.6	35	40	30		4	12	3.8	16.0
17.	14.1	5.6	54			30	4	26	3.1	19.0
18.	4.6	5.3	23			40	5	94	3.0	11.4
19.	4.5	5.6	19	70	25		5	55	4.2	11.3
20.	4.5	5.4	12	30	17		5	94	3.8	14.2

ARTEMISIA TRIDENTATA Study Area Horse creek Date Sept. 3, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	4.8	5.8	32	70	32						
2.	4.8	5.9	29	50	30						
3.	4.7	5.8	35	80	40						
4.	14.1	6.0	58	64	40						
5.	14.2	5.9	14	17	13						
6.	4.7		13	15	8						
7.	14.2	6.0	56	60	35						
8.	14.2		10	18	8						
9.	14.1		26	53	17						
10.	14.0		19	20	12						
11.	14.0		25	40	20						
12.	14.0	5.8	14	20	12						
13.	4.9		26	18	10						
14.	4.8	5.7	47	40	25						
15.	14.1	5.8	34	25	20						
16.	4.8	6.0	35	40	30						
17.	4.9	5.9	54								
18.	4.9	5.8	23								
19.	4.9	5.9	19	70	25						
20.	4.8	5.7	12	30	17						

ARTEMISIA TRIDENTATA

Study Area Horse creek

Date Sept. 24, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	14.1	7.8	32	70	32				3	15
2.	4.8	9.6	29	50	30				13	22
3.	4.8	8.4	35	80	40				6	20
4.	14.1	9.2	58	64	40				6	15
5.	14.2	9.3	14	17	13				8	25
6.	4.8		13	15	8				3	
7.	14.3	9.4	56	60	35				4	19
8.	14.2		10	18	8				3	
9.	14.2		26	53	17				4	
10.	14.1	8.6	19	20	12				6	24
11.	14.2		25	40	20				5	
12.	14.1	7.5	14	20	12				7	16
13.	4.9		26	18	10				13	
14.	14.0	7.8	47	40	25				9	24
15.	14.1	7.6	34	25	20				15	25
16.	14.0	8.2	35	40	30				5	18
17.	14.1	7.4	54						13	19
18.	14.1	9.5	23						4	14
19.	14.1	8.5	19	50	25				5	11
20.	14.0	8.7	12	30	17				5	13

ARTEMISIA TRIDENTATA Study Area Mesa Antelope Date May 23, 1978

PLANT NO.	PHENO. STAGE SCORE VEG.	PHENO. STAGE SCORE REPR.	PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
1.	2.8		18	56	44		5	25			
2.	2.3		25	53	28		5	25			
3.	2.3		23	62	47		3	25			
4.	2.1		12	27	13		4	50			
5.	2.0		14	27	18		5	20			
6.	2.2		21	43	31		5	20			
7.	2.2		21	44	35		5	15			
8.	2.3		18	35	21		5	25			Browsed.
9.	2.4		12	51	28		4	10			Browsed.
10.	2.7		15	33	22		5	20			Browsed.
11.	2.3		10	18	14		5	30			
12.	2.3		22	62	18		5	35			
13.	2.1		20	42	20		5	30			
14.	2.3		19	71	49		5	50			Browsed.
15.	2.1		12	35	21		5	30			
16.	2.3		16	46	25		5	25			Browsed.
17.	2.0		12	45	21		5	45			
18.	2.1		17	37	26		5	15			
19.	2.3		21	62	43		5	35			Browsed.
20.	2.2		17	28	12		5	40			

ARTEMISIA TRIDENTATA Study Area Mesa Antelope Date June 6, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	2.8		18	56	44					
2.	2.3		25	53	28					
3.	2.6		23	62	47					
4.	2.5		12	27	13					
5.	2.3		14	27	18					
6.	.24		21	43	31					
7.	2.4		21	44	35					
8.	2.5		18	35	21					
9.	2.6		21	51	28					
10.	2.8		15	33	22					
11.	2.4		10	18	14					
12.	2.7		22	62	18					
13.	2.6		20	42	20					
14.	2.4		19	71	49					
15.	2.4		12	35	21					
16.	2.6		16	46	25					
17.	2.4		12	45	21					
18.	2.4		17	37	26					
19.	2.5		21	62	43					
20.	2.4		17	28	12					

ARTEMISIA TRIDENTATA Study Area Mesa Antelope Date June 27, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PERCENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	3.1		18	56	44						
2.	2.8		25	53	28						
3.	3.1		23	62	47						
4.	2.6		12	27	13						
5.	2.5		14	27	18						
6.	2.6		21	43	31						
7.	2.8		21	44	35						
8.	3.0		18	35	21						
9.	2.9		21	51	28						
10.	3.1		15	33	22						
11.	2.7		10	18	14						
12.	3.2		22	62	18						
13.	2.9		20	42	20						
14.	3.2		19	71	49						
15.	2.7		12	35	21						
16.	3.1		16	46	25						
17.	3.1		12	45	21						
18.	3.0		17	37	26						
19.	3.1		21	62	43						
20.	2.9		17	28	12						

ARTEMISIA TRIDENTATA

Study Area Mesa Antelope

Date July 18, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	3.3	5.1	18	56	44						
2.	3.2	5.0	25	53	28						
3.	3.3	5.1	23	62	47						
4.	3.1	5.2	12	27	13						
5.	2.2	5.1	14	27	18						
6.	3.3	5.0	21	43	31						
7.	3.2	5.0	31	44	35						
8.	3.3	5.2	18	35	21						
9.	3.3	5.2	21	51	28						
10.	3.3	5.2	15	33	22						
11.	3.3	5.2	10	18	14						
12.	3.4	5.1	22	62	18						
13.	3.3	5.0	20	42	20						
14.	3.4	5.1	19	71	49						
15.	3.2	5.2	12	35	21						
16.	3.3	5.2	16	46	25						
17.	3.3	5.1	12	45	21						
18.	3.3		17	37	26						
19.	3.3	5.1	21	62	43						
20.	3.3	5.1	17	28	12						

ARTEMISIA TRIDENTATA Study Area Mesa Antelope Date Aug. 8, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	4.4	5.7	14	38	35		3	2	4.0	19.4
2.	14.0	5.6	16			36	3	2	2.3	12.0
3.	4.4	5.7	24	60	54		3	5	3.5	8.8
4.	4.5	6.0	13	24	14		4	45	.8	10.5
5.	14.2		12	24	16		3	2	.3	
6.	4.4	5.3	22	30	20		3	4	2.8	11.0
7.	14.2	5.7	10.5	36	30		3	2	2.7	11.0
8.	14.1	6.1	24	10	8		4	2	2.8	13
9.	4.4	6.3	20	30	27		3	4	2.8	9.2
10.	4.4	6.2	16	20	18		2		4.2	15.5
11.	4.5	5.8	10	14	8		2	20	3.2	12.2
12.	14.1	5.5	24	34	20		4	25	2.3	13.4
13.	14.1	5.5	20	30	10		4	15	1.4	10.0
14.	14.0	5.5	18	46	29		5	45	2.2	14.0
15.	4.4	5.3	12	24	14		2	20	1.5	6.7
16.	4.4	5.6	15	28	20		3	5	2.3	12.4
17.	14.0	6.0	12	40	24		4	45	1.6	10.5
18.	4.4		16	30	18		3		4.2	
19.	14.1	5.8	20	44	34		3	3	4.8	17.5
20.	14.1	5.9	15	30	20		4	18	1.0	12.5

ARTEMISIA TRIDENTATA Study Area Mesa Antelope Date Aug. 30, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	14.3	7.3								
2.	14.3	7.2								
3.	14.4	7.2								
4.	14.2	7.3								
5.	14.5									
6.	14.4	5.9								
7.	14.5	6.2								
8.	14.5	7.3								
9.	14.5	7.2								
10.	14.3	7.3								
11.	14.4	7.5								
12.	14.5	7.3								
13.	14.4	6.3								
14.	14.4	7.2								
15.	14.3	7.2								
16.	14.3	6.3								
17.	14.2	7.3								
18.	14.2									
19.	14.4	7.3								
20.	14.4	7.3								

ARTEMISIA TRIDENTATA Study Area Mesa Antelope Date Nov. 4, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	14.4	13.6									
2.	14.6	15.2									
3.	14.4	13.7									
4.	14.4	13.8									
5.	14.4	13.6									
6.	14.5	13.8									
7.	14.6	13.6									
8.	14.6	31.6									
9.	14.6	15.1									
10.	14.5	15.1									
11.	14.6	15.1									
12.	14.7	15.3									
13.	14.4	13.7									
14.	14.7	15.3									
15.	14.6	15.3									
16.	14.4	13.7									
17.	14.6	13.9									
18.	14.5										
19.	14.5	13.8									
20.	14.4	15.1									

ARTEMISIA TRIDENTATA Study Area Owl Draw Date May 26, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.4		45	69	46		5	20			
2.	2.3		43	54	43		5	25			
3.	2.2		15	49	25		5	35			
4.	2.2		9	20	8		5	50			
5.	2.2		20	38	37		5	30			
6.	2.2		27			33	5	25			
7.	2.2		6	8	5		2	40			
8.	2.2		19	32	22		3	15			
9.	2.1		46	75	50		5	20			
10.	2.3		9	14	5		2	30			
11.	2.2		61	75	52		5	25			
12.	2.2		64	83	41		5	20			
13.	2.3		32	55	27		5	40			
14.	2.3		49	103	74		5	15			
15.	2.2		41	76	26		5	35			
16.	2.2		8	10	9		2	20			
17.	2.1		7	7	3		2	20			
18.	2.1		11	24	8		5	65			
19.	2.1		7	10	3		2	55			
20.	2.2		16	63	26		5	20			

ARTEMISIA TRIDENTATA Study Area Owl Draw Date June 8, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.4		45	69	46						
2.	2.4		43	54	43						
3.	2.3		15	49	25						
4.	2.4		9	20	8						
5.	2.3		20	38	37						
6.	2.4		27								
7.	2.4		6	8	5						
8.	2.3		19	32	22						
9.	2.4		46	75	50						
10.	2.3		9	14	5						
11.	2.4		61	75	52						
12.	2.6		64	83	41						
13.	2.3		32	55	27						
14.	2.3		49	103	74						
15.	2.2		41	76	26						
16.	2.3		8	10	9						
17.	2.4		7	7	3						
18.	2.3		11	24	8						
19.	2.4		7	10	3						
20.	2.2		16	63	26						

ARTEMISIA TRIDENTATA Study Area Owl Draw Date July 1, 1978

PLANT NO.	PHENO. STAGE SCORE VEG.	REPR.	PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
1.	4.3	5.0	45	69	46						
2.	4.0	5.0	43	54	43						
3.	3.8	5.0	15	49	25						
4.	3.8		9	20	8						
5.	3.8		20	38	37						
6.	3.7	5.0	27								
7.	3.5		6	8	5						
8.	3.5		19	32	22						
9.	3.8	5.0	46	75	50						
10.	3.5		9	14	5						
11.	4.0		61	75	52						
12.	4.3	5.1	64	83	41						
13.	3.5		32	55	27						
14.	3.8	5.0	49	103	74						
15.	3.5		41	76	26						
16.	3.5		8	10	9						
17.	3.5		7	7	3						
18.	4.0	5.0	11	24	8						
19.	3.5		7	10	3						
20.	3.6	5.0	16	63	26						

ARTEMISIA TRIDENTATA Study Area Owl Draw Date July 24, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT.	PLANT LNGTH.	PLANT WIDTH	PLANT DIAM.	PLANT AGE CLASS	DEAD BRANCH PERCENT	NEW VEG. TWIG LNGTH.	NEW SEED STALK LNGTH
	VEG.	REPR.	cm	cm	cm	cm			cm	cm
1.	4.4	5.2	45	60	40				12	19
2.	4.2	5.4	40	45	38				4	10
3.	3.8	5.3	18	60	26				3	8
4.	3.8		12	18	8				5	
5.	3.9		20	40	28				4	
6.	4.0	5.3	24	28	22				2	13
7.	3.8		5	5	4				3	
8.	3.8		20	30	19				2	
9.	3.8	5.3	48	64	42				4	13
10.	3.7		12	13	5				1	
11.	4.4		62	83	35				2	
12.	4.4	5.3	60	83	40				3	22
13.	3.8		9	5	4				1	
14.	3.9	5.2	55	75	50				8	15
15.	3.9	5.3	15	20	10				4	11
16.	3.8		12	10	8				1	
17.	3.9		10						4	
18.	4.0		12	23	6				1	
19.	3.9		7	8	5				3	
20.	4.2	5.2	32	50	26				1	7

ARTEMISIA TRIDENTATA Study Area Owl Draw Date August 11, 1978

PLANT NO.	PHENO. STAGE SCORE VEG.	REPR.	PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
1.	14.1	5.6	45	60	40		4	2	4.0	17.2
2.	4.6	5.6	40	45	38		4	7	3.0	9.4
3.	4.6	5.6	18	60	26		5	22	2.2	23.2
4.	4.5		12	18	8		2	12	3.8	
5.	14.1		20	40	28		4	12	3.5	
6.	4.6	5.6	24	28	22		4	15	1.5	13.0
7.	14.1		5	5	4		2	0	2.0	
8.	4.5	5.3	20	30	19		3	0	.5	5.0
9.	14.1	5.7	48	64	42		4	5	.6	13.5
10.	4.6		12	13	5		2	0	2.0	
11.	14.1		62	83	35		4	6	2.6	
12.	4.6	5.6	60	83	40		4	2	5.5	20.2
13.	4.6		9	5	4		2	0	2.1	
14.	14.1	5.7	55	75	50		4	0	1.8	16.0
15.	14.1		15	20	10		3	20	2.8	
16.	4.6		12	10	8		2	0	3.0	
17.	4.6		10			2	2	0	4.0	
18.	4.6		12	23	6		3	30	1.6	
19.	14.0		7	8	5		2	30	2.8	
20.	4.6	5.4	32	50	26		5	28	.4	6.2

ARTEMISIA TRIDENTATA Study Area Owl Draw Date September 4, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT.	PLANT LNGTH.	PLANT WIDTH	PLANT DIAM.	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH.	NEW SEED STALK LNGTH	
	VEG.	REPR.	cm	cm	cm	cm			cm	cm	
1.	14.3	6.2	45	60	40						
2.	14.2	5.9	40	45	38						
3.	14.2	6.3	18	60	26						
4.	14.3		12	18	8						
5.	14.2		20	40	28						
6.	14.3	7.1	24	28	22						
7.	14.0		5	5	4						
8.	14.2	5.9	20	30	19						
9.	14.2	6.0	48	64	42						
10.	14.2		12	13	5						
11.	14.4		62	83	35						
12.	14.2	5.9	60	83	40						
13.	4.9	5.8	9	5	4						
14.	14.3	6.2	55	75	50						
15.	14.3		15	20	10						
16.	14.3		12	10	8						
17.	14.2		10								
18.	14.2	5.8	12	23	6						
19.	14.2		7	8	5						
20.	14.3	6.2	32	50	26						

ARTEMISIA TRIDENTATA Study Area Owl Draw Date September 29, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	14.2	9.4							7	17
2.	14.2	9.3							4	10
3.	14.3	9.2							3	15
4.	14.3								3	
5.	14.2								4	
6.	14.3	9.2							1	13
7.	14.3								4	
8.	14.3	9.2							1	6
9.	14.4	9.2							1	19
10.	14.2								8	
11.	14.4								5	
12.	14.3	9.3							6	19
13.	14.2	9.2							4	26
14.	14.3	9.3							4	16
15.	14.2	9.1							4	12
16.	14.3								4	
17.	14.3								4	
18.	14.4								2	
19.	14.3								3	
20.	14.4	9.0							2	11

ARTEMISIA TRIDENTATA Study Area Red Wash #2 Date April 29, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	1.1										
2.	1.1										
3.	1.1										
4.	1.1										
5.	1.1										
6.	1.3										
7.	1.1										
8.	1.1										
9.	1.1										
10.	1.1										
11.	1.1										
12.	1.1										
13.	1.1										
14.	1.1										
15.	1.1										
16.	1.1										
17.	1.1										
18.	1.1										
19.	1.1										
20.	1.1										

ARTEMISIA TRIDENTATA Study Area Red Wash #2 Date May 22, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.3		35	61	39		3	10			
2.	1.8		40	54	40		5	80			Dying.
3.	2.2		37	110	76		3	15			
4.	2.7		18	38	25		3	20			
5.	2.8		25	33	27		3	25			
6.	2.4		38	63	27		4	35			
7.	2.0		28	76	54		3	10			
8.	1.9		21	24	16		4	25			
9.	2.2		24	68	58		3	15			
10.	2.1		27	74	45		4	15			
11.	2.2		13	19	12		3	25			
12.	2.2		29	98	68		4	15			
13.	2.1		9	15	7		2	10			
14.	2.2		28	77	60		3	10			
15.	2.0		11	20	6		3	25			
16.	2.1		28	43	34		4	20			
17.	2.4		18	43	39		3	15			
18.	2.2		44	110	103		4	10			
19.	2.1		14	49	41		5	30			
20.	2.2		39	58	42		4	10			

ARTEMISIA TRIDENTATA Study Area Red Wash #2 Date June 5, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.7		35	61	39						
2.	2.6		40	54	40						
3.	2.6		37	110	76						
4.	2.6		18	38	25						
5.	2.6		25	33	27						
6.	2.5		38	63	37						
7.	2.5		28	76	54						
8.	2.7		21	24	16						
9.	2.6		24	68	58						
10.	2.6		27	74	45						
11.	2.6		13	19	12						
12.	2.6		29	98	68						
13.	2.9		9	15	7						
14.	2.6		28	77	60						
15.	2.5		11	20	6						
16.	2.7		28	43	34						
17.	2.7		18	45	39						
18.	2.8		44	110	103						
19.	2.6		14	49	41						
20.	2.9		39	58	42						

ARTEMISIA TRIDENTATA　　Study Area Red Wash #2　　Date June 26, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.7		35	61	39						
2.	2.7		40	54	40						
3.	2.9		37	110	76						
4.	2.6		18	38	25						
5.	2.5		25	33	27						
6.	2.8		38	63	37						
7.	2.8		28	76	54						
8.	3.1		21	24	16						
9.	3.2		24	68	16						
10.	3.3		27	74	45						
11.	2.8		13	19	12						
12.	3.1		29	98	68						
13.	2.8		9	15	7						
14.	3.1		28	77	60						
15.	2.4		11	20	6						
16.	3.0		28	43	34						
17.	3.2		18	45	39						
18.	3.1		44	110	103						
19.	2.9		14	49	41						
20.	3.2		39	58	42						

ARTEMISIA TRIDENTATA Study Area Red Wash #2 Date July 17, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	3.5	5.2	35	61	39					
2.	3.2	5.1	40	54	40					
3.	3.2	5.2	37	110	76					
4.	3.1	5.2	18	38	25					
5.	3.4	5.3	25	33	27					
6.	3.5	5.2	38	63	37					
7.	3.2	5.2	28	76	54					
8.	3.4	5.2	21	24	16					
9.	3.3	5.3	24	68	16					
10.	3.2	5.2	27	74	45					
11.	3.3	5.2	13	19	12					
12.	3.5	5.3	29	98	68					
13.	3.3		9	15	7					
14.	3.2	5.3	28	77	60					
15.	3.0	5.2	11	20	6					
16.	3.4	5.2	28	43	34					
17.	3.3	5.4	18	45	39					
18.	3.3	5.3	44	110	103					
19.	3.5	5.1	14	49	41					
20.	3.4	5.3	39	58	42					

ARTEMISIA TRIDENTATA   Study Area Red Wash #2   Date Aug. 4, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT.	PLANT LNGTH.	PLANT WIDTH	PLANT DIAM.	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH.	NEW SEED STALK LNGTH
	VEG.	REPR.	cm	cm	cm	cm			cm	cm
1.	14.2	5.4	46	80	62		3	10	4	17
2.	14.1	5.4	42	66	42		5	50	2	10
3.	14.0	5.5	44	117	84		5	5	2	13
4.	4.8	5.4	50	55	24		5	10	3	17
5.	14.1	5.5	35	29	21		5	10	2	9
6.	14.2	5.5	37	38	27		3	5	2	12
7.	14.0	5.3	29	78	51		5	10	3	15
8.	14.1	5.4	38	31	21		5	35	3	18
9.	4.6	5.5	30	32	26		5	15	3	13
10.	14.1	5.6	41	66	54		5	15	2	11
11.	14.1	5.4	25	25	19		5	20	3	11
12.	14.1	5.3	56			96	5	10	5	19
13.	14.0		10	15	8		2	10	3	
14.	14.3	5.4	56	74	66		3	5	2	20
15.	14.1	5.4	11	20	11		4	30	.5	10
16.	14.1	5.5	41	72	38		5	10	3	14
17.	14.1	5.5	38	46	24		3	10	4	19
18.	14.0	5.4	57	116	114		5	15	2	15
19.	14.0	5.6	27	43	38		4	40	4	5
20.	14.2	5.4	56	59	45		5	15	4	17

ARTEMISIA TIRDENTATA Study Area Red Wash #2 Date Aug. 28, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	14.3	6.3									
2.	14.3										Very few leaves dried
3.	4.8	6.2									on plant, but many present
4.	14.1	6.4									below plant some of which
5.	14.0	6.5									may be this years.
6.	14.2	6.2									
7.	4.9	6.0									
8.	14.2	6.6									Bloom very red in color
9.	4.9	6.0									anthesis present on most
10.	14.1	6.2									plants.
11.	14.2	6.0									
12.	4.8	5.9									
13.	14.1										
14.	4.9	6.2									
15.	4.8	6.1									
16.	4.8	6.1									
17.	14.0	6.4									
18.	14.1	5.9									
19.	14.2	7.2									
20.	14.2	7.3									

ARTEMISIA TRIDENTATA Study Area Red Wash #2 Date Nov. 5, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	14.4	13.8									
2.	14.6	15.2									
3.	14.5	15.2									
4.	14.5	15.2									
5.	14.5	15.2									
6.	14.6	15.4									
7.	14.4	15.4									
8.	14.5	15.4									
9.	14.5	15.4									
10.	14.4	15.5									
11.	14.4	15.4									
12.	14.5	15.5									
13.	14.5	15.5									
14.	14.5	15.5									
15.	14.4	15.4									
16.	14.4	15.5									
17.	14.6	15.6									
18.	14.6	15.6									
19.	14.5	15.4									
20.	14.4	15.4									

ARTEMISIA TRIDENTATA Study Area Shoshoni #7 Date May 24, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	1.9		18	36	32		5	15			
2.	2.1		10	47	43		4	50			
3.	2.0		9	23	21		5	10			
4.	2.1		18	34	22		5	15			
5.	1.7		9	33	24		5	10			
6.	2.1		25	51	36		3	20			
7.	2.1		22	49	44		4	60			
8.	2.2		22	44	33		5	15			
9.	2.1		16	41	32		5	35			
10.	2.1		10	19	11		4	75			
11.	2.1		14	69	34		5	30			
12.	2.0		8	16	14		4	70			
13.	2.1		21	43	26		5	25			
14.	2.1		17	26	21		3	15			
15.	2.1		23	37	8		4	50			
16.	2.1		08	35	14		5	20			
17.	2.1		14	46	23		5	15			
18.	2.3		24	37	18		5	25			
19.	2.1		18	37	18		5	20			
20.	2.0		10	41	25		5	20			

ARTEMISIA TRIDENTATA Study Area Shoshoni #7 Date June 9, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.3		18	36	32						
2.	2.3		10	47	43						
3.	2.2		9	23	21						
4.	2.2		18	34	22						
5.	2.2		9	33	24						
6.	2.3		28	51	36						
7.	2.2		22	49	44						
8.	2.2		22	44	33						
9.	2.1		16	41	32						
10.	2.2		10	19	11						
11.	2.3		14	69	34						
12.	2.3		8	16	14						
13.	2.2	5.2	21	43	26						
14.	2.3		17	26	21						
15.	2.2		23	37	8						
16.	2.2		08	25	14						
17.	2.2	5.2	14	46	23						
18.	2.3		24	37	18						
19.	2.2		18	37	18						
20.	2.1		10	41	25						

ARTEMISIA TRIDENTATA Study Area Shoshoni #7 Date June 28, 1978

PLANT NO.	PHENO. STAGE SCORE. VEG.	REPR.	PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
1.	3.2	5.0	18	36	32						
2.	3.0		10	47	43						
3.	3.0	5.0	9	23	21						
4.	3.0	5.0	18	34	22						
5.	2.7	5.0	9	33	24						
6.	3.1	5.0	28	51	36						
7.	2.9	5.0	22	49	44						
8.	3.1	5.0	22	44	33						
9.	3.0		16	41	32						
10.	3.2	5.0	10	19	11						
11.	2.8	5.0	14	69	34						
12.	2.6		8	16	14						
13.	3.1	5.0	21	43	26						
14.	3.1	5.0	17	26	21						
15.	3.1		23	37	8						
16.	3.0		08	25	14						
17.	2.9	5.0	14	46	23						
18.	3.1	5.0	24	37	18						
19.	2.8	5.0	18	37	18						
20.	2.7	5.0	10	41	25						

ARTEMISIA TRIDENTATA   Study Area Shoshoni #7   Date July 17, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	3.5	5.0	18	36	32					
2.	3.4	5.0	10	47	43					
3.	3.4	5.0	9	23	21					
4.	3.4	5.0	18	34	22					
5.	3.3	5.0	9	33	24					
6.	3.5	5.0	28	51	36					
7.	3.4	5.0	22	49	44					
8.	3.5	5.0	22	44	33					
9.	3.5	5.0	16	41	32					
10.	3.3	5.0	10	19	11					
11.	3.3	5.0	14	69	34					
12.	3.2		8	16	14					
13.	3.5	5.0	21	43	26					
14.	3.3	5.0	17	26	21					
15.	3.2	5.0	23	37	8					
16.	3.3		08	25	14					
17.	3.2		14	46	23					
18.	3.4	5.0	24	37	18					
19.	3.3	5.0	18	37	18					
20.	3.2	5.0	10	41	25					

ARTEMISIA TRIDENTATA Study Area Shoshoni #7 Date Aug. 9, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	4.4	5.4	14	30	20		3	2	2.0	10.5
2.	4.4	5.3	10	40	30		5	75	.3	4.2
3.	14.1	5.5	9	36	12		5	25	.7	3.3
4.	4.5	5.5	14	30	15		3	0	1.0	9.2
5.	4.5	5.5	9	24	7		3	3	.3	4.0
6.	4.4	5.5	32	40	25		3	5	1.1	8.8
7.	4.4	5.3	20			40	5	55	.2	5.9
8.	4.4	5.3	20			30	4	7	1.3	8.8
9.	4.4		10	30	24		4	12	.1	
10.	4.4	5.4	8	16	9		4	25	1.4	6.5
11.	4.4	5.4	16	30	16		3	3	.4	6.0
12.	4.4		8	12	10		3	80	.1	
13.	4.5	5.5	16	35	32		4	18	1.4	5.5
14.	4.4	5.5	18	26	17		3	5	.3	7.3
15.	14.0	5.3	20	38	10		3	85	.4	7.0
16.	14.1		7	25	20		3	65	.6	
17.	4.4	5.5	12	40	20		4	4	1.5	3.8
18.	4.4	5.4	18	30	15		4	10	.5	12.5
19.	4.5	5.5	13	22	15		3	10	1.2	8.0
20.	14.0	5.7	9	40	20		4	22	.1	42

ARTEMISIA TRIDENTATA Study Area Shoshoni #7 Date Sept. 1, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	14.3	5.9	14	30	20						
2.	4.9	5.9	10	40	30						
3.	14.2	5.9	9	36	12						
4.	14.7	5.9	14	30	15						
5.	14.0		9	24	7						
6.	14.2	6.1	32	40	25						
7.	14.2	6.0	20								
8.	4.9	5.9	20								
9.	4.8	6.0	10	30	24						
10.	14.1	6.0	8	16	9						
11.	14.0	5.9	16	30	16						
12.	14.2		8	12	10						
13.	14.2	5.9	16	35	32						
14.	14.2	6.0	18	26	17						
15.	14.1	5.9	20	38	10						
16.	14.2		7	25	20						
17.	14.9	6.0	12	40	20						
18.	14.2	5.9	18	30	15						
19.	14.1	5.9	13	22	15						
20.	14.2	5.8	9	40	20						

ARTEMISIA TRIDENTATA

Study Area Shoshoni #7

Date Sept. 23, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	14.4	8.6							1	8
2.	14.1	8.7							.5	4
3.	14.2	8.3							2	4
4.	14.0	8.6							3	6
5.	14.0	8.2							.5	4
6.	14.2	8.5							1	7
7.	14.2	8.2							.5	6
8.	14.0	8.7							1	7
9.	4.9								1	
10.	14.2	8.5							1	12
11.	14.0	8.5							.5	9
12.	14.2								.5	
13.	14.3	8.6							1	7
14.	14.2	8.5							1	7
15.	14.2	8.5							1	8
16.	14.3								.5	
17.	14.0	8.6							1	4
18.	14.2	8.6							1	9
19.	14.1	8.7							.5	13
20.	14.3	8.5							.5	3

ATREMISIA TRIDENTATA Study Area Sweetwater Date May 24, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	2.1		14	52	29		3	15		
2.	2.1		6	11	6		4	80		
3.	2.2		26	51	32		5	25		
4.	2.1		47	59	43		5	20		
5.	2.1		22	22	15		5	45		
6.	2.1		13	36	25		5	20		
7.	2.1		15	49	22		4	50		
8.	2.1		6	25	17		5	20		
9.	2.1		18	62	45		5	25		
10.	2.1		30	42	33		5	30		
11.	2.1		36	99	87		5	20		
12.	2.1		8	23	18		4	45		
13.	2.1		11	22	22		3	15		
14.	2.1		9	29	18		4	60		
15.	2.1		36	89	77		5	10		
16.	2.1		27	75	71		5	40		
17.	2.1		8	51	28		3	10		
18.	2.1		36	62	45		3	20		
19.	2.1		18	112	51		5	15		
20.	2.1		9	16	13		4	65		

ARTEMISIA TRIDENTATA Study Area Sweetwater Date June 7, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.2		14	52	29						
2.	2.4		6	11	6						
3.	2.3		26	51	32						
4.	2.3		47	59	43						
5.	2.3		22	22	15						
6.	2.3		13	36	25						
7.	2.4		15	49	22						
8.	2.4		6	26	17						
9.	2.3		18	62	45						
10.	2.3		30	42	33						
11.	2.2		36	99	87						
12.	2.4		8	23	18						
13.	2.4		11	22	22						
14.	2.3		9	29	18						
15.	2.3		36	89	77						
16.	2.3		27	75	71						
17.	2.2		8	51	28						
18.	2.2		36	62	45						
19.	2.2		18	112	51						
20.	2.3		8	16	13						

ARTEMISIA TRIDENTATA Study Area Sweetwater Date June 30, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.5		14	52	29						
2.	2.8		6	11	6						
3.	2.8		26	51	32						
4.	2.6		47	59	43						
5.	2.5		22	22	15						
6.	2.8		13	36	25						
7.	2.7		15	49	22						
8.	2.7		6	26	17						
9.	2.8		18	62	45						
10.	2.9		30	42	33						
11.	2.8		36	99	87						
12.	2.6		8	23	18						
13.	2.8		11	22	22						
14.	2.6		9	29	18						
15.	2.9		36	89	77						
16.	2.5		27	75	71						
17.	2.6		8	51	28						
18.	2.9		36	62	45						
19.	2.6		18	112	51						
20.	2.6		8	16	13						

ARTEMISIA TRIDENTATA

Study Area Sweetwater

Date July 19, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT.	PLANT LNGTH.	PLANT WIDTH	PLANT DIAM.	PLANT AGE CLASS	DEAD BRANCH PERCENT	NEW VEG. TWIG LNGTH.	NEW SEED STALK LNGTH	
	VEG.	REPR.	cm	cm	cm	cm			cm	cm	
1.	3.1	5.1	14	52	29						
2.	3.2		6	11	6						
3.	3.1	5.0	26	51	32						
4.	3.1	5.0	47	59	43						
5.	3.1	5.0	22	22	15						
6.	2.8	5.0	13	36	25						
7.	3.0	5.0	15	49	22						
8.	3.2		6	26	17						
9.	3.2	5.1	18	62	45						
10.	3.2	5.0	30	42	33						
11.	3.1	5.0	36	99	87						
12.	3.0	5.1	8	23	18						
13.	3.1	5.0	11	22	22						
14.	3.0	5.0	9	29	18						
15.	3.1	5.0	36	89	77						
16.	3.0	5.0	27	75	71						
17.	3.0		8	51	28						
18.	3.1	5.0	36	62	45						
19.	2.7	5.0	18	112	51						
20.	3.0	5.0	8	16	13						

ARTEMISIA TRIDENTATA Study Area Sweetwater Date Aug. 7, 1978

PLANT NO.	PHENO. STAGE SCORE.		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	4.2	5.4	15	40	24		2	2	1.1	11.6
2.	4.7		7	17	8		3	90	1.2	
3.	4.8	5.5	21	40	28		3	7	3.0	10.7
4.	4.3	5.5	33	46	34		5	4	1.6	13.8
5.	4.7	5.6	18	18	8		3	30	0.9	9.2
6.	4.8	5.3	13	36	25		5	5	.7	6.1
7.	4.2	5.3	16	50	20		4	60	1.1	7.3
8.	4.8		15	23	12		5	10	1.9	
9.	4.8	5.4	25	30	30		5	2	2.2	16.0
10.	4.8	5.4	20	30	16		4	55	.9	4.0
11.	4.8	5.7	38	35	22		5	12	2.0	11.0
12.	4.3	5.2	13	20	13		4	60	.2	4.6
13.	4.6	5.8	17	30	24		4	20	3.0	9.8
14.	4.2	5.5	12	24	15		5	50	1.2	7.0
15.	4.7	5.8	37	70	65		4	1	2.3	8.0
16.	4.6	5.4	29	50	32		5	10	1.5	10.5
17.	4.7	5.8	8	53	36		4	3	1.7	4.2
18.	4.7	5.7	32	44	38		4	7	1.0	6.2
19.	4.7	5.5	16	90	50		4	4	1.5	6.5
20.	4.3		10	16	10		5	70	.3	

ARTEMISIA TRIDENTATA Study Area Sweetwater Date Sept. 1, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	4.8	7.3	15	40	24				2.5	9
2.	4.8		7	17	8				1	
3.	4.9	5.9	21	40	28				3	12
4.	4.8	5.9	33	46	34				2	12
5.	4.8	5.9	18	18	8				.5	8
6.	4.8	5.8	13	36	25				.5	6
7.	4.9	5.9	16	50	20				.5	9
8.	4.9		15	23	12				1	
9.	4.8	5.8	25	30	30				2	13
10.	4.8	5.7	20	30	16				2	9
11.	4.8	5.8	38	35	22				1	10
12.	4.7	5.7	13	20	13				3	5
13.	4.8	6.2	17	30	24				2	9
14.	4.9	5.7	12	24	15				2	6
15.	4.8	5.7	37	70	65				1	8
16.	4.8	5.6	29	50	32				2	5
17.	4.7		8	53	36				1	
18.	4.9	5.7	32	44	38				.5	9
19.	4.8	5.8	16	90	50				.5	10
20.	4.8		10	16	10				1	

ARTEMISIA TRIDENTATA Study Area Sweetwater Date Sept. 22, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	14.1	8.3							2	13	
2.	14.1								2		
3.	14.1	8.5							3	12	
4.	14.1	7.6							3.5	14	
5.	14.1	8.5							1	9	
6.	14.3	8.4							1	9	
7.	14.3	8.0							2	7	
8.	14.2								2.5		
9.	14.1	8.7							5	16	
10.	14.1	8.1							2	7	
11.	14.2	8.3							1	8	
12.	14.1	8.1							1	5	
13.	14.1	8.5							2	6	
14.	14.3	8.2							1	6	
15.	14.4	8.4							5	10	
16.	14.1	8.3							2	4	
17.	14.1								1		
18.	14.3	8.5							2	9	
19.	14.1	8.2							1	9	
20.	14.0	8.3							2	3	

ARTEMISIA TRIDENTATA   Study Area Upper Gov't. Draw   Date May 24, 1978

PLANT NO.	PHENO. STAGE SCORE. VEG.	REPR.	PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
1.	2.2		22	21	17		3	20			
2.	2.0		16	57	13		5	25			
3.	2.1		22	41	35		5	25			
4.	2.1		15	37	18		4	50			
5.	2.1		26	61	26		5	25			
6.	2.1		26	42	39		3	20			
7.	2.1		21	32	20		5	10			
8.	2.0		19	18	11		5	60			
9.	2.1		32	48	42		5	20			
10.	2.1		26	38	30		5	15			
11.	2.2		32	46	37		5	20			
12.	2.2		18	20	16		5	30			
13.	2.1		37	83	62		5	15			
14.	2.1		31	35	28		5	20			
15.	2.2		22	27	20		3	10			
16.	2.1		26	64	54		5	20			
17.	2.2		27	52	37		3	20			
18.	2.1		35	41	37		3	25			
19.	2.1		22	20	16		5	10			
20.	2.1		28	48	29		3	20			

ARTEMISIA TRIDENTATA Study Area Upper Gov't. Draw Date June 7, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.4		22	21	17						
2.	2.3		16	57	13						
3.	2.4		22	41	35						
4.	2.3		15	37	18						
5.	2.3		26	61	26						
6.	2.4		26	42	39						
7.	2.3		21	32	20						
8.	2.3		19	18	11						
9.	2.3		32	48	42						
10.	2.4		26	38	30						
11.	2.3		32	46	37						
12.	2.3		18	20	16						
13.	2.2		37	83	62						
14.	.4		31	35	28						
15.	2.3		22	27	20						
16.	2.3		26	64	54						
17.	2.3		27	52	37						
18.	2.4		35	41	37						
19.	2.3		22	20	16						
20.	2.3		28	48	29						

ARTEMISIA TRIDENTATA Study Area Upper Gov't. Draw Date June 27, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	2.6		22	21	17						
2.	2.5		16	57	13						
3.	2.4		22	41	35						
4.	2.5		15	37	18						
5.	2.5		26	61	26						
6.	2.8		26	42	39						
7.	2.6		21	32	20						
8.	2.5		19	18	11						
9.	2.6		32	48	42						
10.	2.7		26	38	30						
11.	2.6		32	46	37						
12.	2.5		18	20	16						
13.	2.8		37	83	62						
14.	2.6		31	35	28						
15.	2.5		22	27	20						
16.	2.4		26	64	54						
17.	2.8		27	52	37						
18.	2.6		35	41	37						
19.	2.7		22	20	16						
20.	2.6		28	48	29						

ARTEMISIA TRIDENTATA

Study Area Upper Gov't. Draw

Date July 19, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm	
	VEG.	REPR.									
1.	3.0	5.0	22	21	17						
2.	2.8	5.0	16	57	13						
3.	3.1	5.0	22	41	35						
4.	3.0	5.0	15	37	18						
5.	2.9	5.0	26	61	26						
6.	3.2	5.0	26	42	39						
7.	2.8	5.0	21	32	20						
8.	3.1	5.0	19	18	11						
9.	2.8	5.0	32	48	42						
10.	3.0	5.0	26	38	30						
11.	3.0	5.0	32	46	37						
12.	3.1	5.0	18	20	16						
13.	2.9	5.0	37	83	62						
14.	3.2	5.0	31	35	28						
15.	2.9		22	27	20						
16.	2.8	5.0	26	64	54						
17.	3.0	5.0	27	52	37						
18.	3.0	5.0	35	41	37						
19.	3.1	5.1	22	20	16						
20.	3.0		28	48	29						

ARTEMISIA TRIDENTATA Study Area Upper Gov't. Draw Date Aug. 9, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PERCENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	4.5	5.5	23	20	18		3	18	1.3	11.4
2.	4.5	5.5	17	34	10		4	10	.4	11.0
3.	4.5	5.6	23			34	4	15	.3	7.6
4.	4.4	5.3	23	27	16		4	35	.6	7.0
5.	4.4	5.4	28	40	32		5	12	2.2	7.6
6.	4.4	5.5	30	36	25		3	7	1.3	7.2
7.	4.4	5.4	20	26	15		3	0	.1	3.3
8.	4.4	5.3	20	16	11		3	2	1.1	7.0
9.	4.4	5.3	31	45	30		4	12	.2	14.0
10.	14.1	5.4	18	30	26		3	5	.2	9.0
11.	14.1	5.4	30	30	20		3	8	1.1	0.8
12.	4.4	5.4	12	13	10		3	0	.3	4.4
13.	14.1	5.5	17	5.7	40		4	12	1.5	10.6
14.	14.1	5.6	30			24	3	10	1.8	4
15.	4.4		17	22	20		3	2	1.3	
16.	14.1	5.5	23	25	22		3	10	1.0	11.0
17.	14.1	5.5	26	40	28		4	7	1.0	11.5
18.	14.1	5.5	36	40	22		4	11	.5	7.0
19.	4.5	5.5	20			10	2	0	2.4	10.8
20.	14.1	5.4	30	40	25		4	2	.6	5.0

ARTEMISIA TRIDENTATA Study Area Upper Gov't. Draw Date Sept. 1, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	14.3	6.0								
2.	14.3	5.9								
3.	14.3	5.9								
4.	14.3	5.9								
5.	14.3	5.9								
6.	14.3	5.9								
7.	14.3	5.9								
8.	14.3	6.0								
9.	14.2	5.9								
10.	14.3	5.9								
11.	14.3	6.0								
12.	14.3	6.1								
13.	14.3	6.0								
14.	14.3	6.0								
15.	14.2									
16.	14.2	5.9								
17.	14.3	5.9								
18.	14.3									
19.	14.3	5.9								
20.	14.2	5.9								

ARTEMISIA TRIDENTATA

Study Area Upper Gov't. Draw

Date Sept. 23, 1978

PLANT NO.	PHENO. STAGE SCORE		PLANT HGHT. cm	PLANT LNGTH. cm	PLANT WIDTH cm	PLANT DIAM. cm	PLANT AGE CLASS	DEAD BRANCH PER-CENT	NEW VEG. TWIG LNGTH. cm	NEW SEED STALK LNGTH cm
	VEG.	REPR.								
1.	14.5	7.8							3	12
2.	14.4	7.6							.5	11
3.	14.5	8.6							.5	11
4.	14.4	7.9							.5	5
5.	14.5	8.4							.5	9
6.	14.4	8.7							2	10
7.	14.4	8.4							.5	4
8.	14.4	8.5							.5	9
9.	14.6	8.3							2	14
10.	14.5	8.6							2	10
11.	14.4	8.8							2	11
12.	14.4	8.3							.5	8
13.	14.5	8.5							1	6
14.	14.4	8.6							2	15
15.	14.4								2	
16.	14.4	8.5							.5	9
17.	14.5	8.7							2	10
18.	14.4								1	
19.	14.5	7.8							1	8
20.	14.4								1	

TABLE V. Pheonolgical development dates for all species for three major growth stages - growth initiation, full bloom, seed dissemination - by exclosure for the years 1973 through 1976.

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TABLE V.

Exclosure	Growth Initiation						Full Bloom						Seed Dissemination					
Species	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978
Bud Kimball																		
AGSM	----	Mar	Mar	Mar	23 Apr	Apr	----	25 Jun	30 Jun	20 Jul	1 Jul	19 Jul	10 Aug	10 Aug	15 Aug	19 Aug	11 Aug	2 Sep
AGSP	----	----	----	----	----	Apr	----	----	----	----	Jun	----	----	----	----	----	20 Jul	10 Aug
ALTE	----	----	----	----	----	May	----	----	20 Jun	----	----	----	12 Jul	17 Jul	20 Jul	----	----	19 Jul
ARHO$_2$	----	----	----	----	----	Apr	----	----	----	----	----	----	----	----	----	----	----	19 Jul
ARTR	----	20 May	May	May	23 Apr	Apr	25 Sep	20 Sep	Sep	25 Sep	17 Sep	----	----	Nov	Nov	Nov	----	1 Nov
BOGR	----	----	----	----	----	Jun	----	----	----	----	----	19 Jul	----	----	----	----	----	2 Sep
BRJA	----	----	----	----	----	----	----	----	----	----	----	Jun	----	----	----	----	----	19 Jul
BRTE	----	----	----	Mar	23 Apr	----	----	15 Jun	25 Jun	23 Jun	8 Jun	----	----	----	20 Jul	30 Jul	1 Jul	19 Jul
CACH	----	----	----	----	23 Apr	----	----	----	----	----	8 Jun	----	----	----	----	----	1 Jul	----
CANU	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	10 Aug
CAS	----	25 Apr	----	Apr	----	----	----	5 Jul	20 Jun	15 Jun	----	Jun	20 Jul	25 Jul	25 Jul	15 Jul	----	19 Jul
CHE	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	2 Sep
CRE	----	----	----	----	23 Apr	----	----	20 Jun	15 Jun	5 Jul	May	----	----	----	----	15 Jul	1 Jul	----
CRMO	----	----	----	----	----	Apr	----	----	----	----	----	Jun	----	----	----	----	----	19 Jul
CYMO	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	15 Jul	----	----
DEPI	----	----	----	----	----	May	----	----	20 Jun	15 Jun	----	----	----	----	25 Jul	25 Jun	----	19 Jul
ERPU	----	----	----	Apr	Apr	25 May	----	----	25 Jun	15 Jun	Jun	26 Jun	----	----	25 Jul	30 Jun	1 Jul	19 Jul
KOCR	----	Mar	Mar	Mar	Apr	----	----	20 Jun	----	20 Jun	8 Jun	----	20 Jul	10 Jul	----	25 Jul	20 Jun	----
LARE	----	----	----	Mar	Apr	25 May	----	10 Jun	17 Jun	15 Jun	8 Jun	----	20 Jul	25 Jul	25 Jul	25 Jul	20 Jul	19 Jul
LEDE	----	----	----	----	----	25 May	----	----	----	----	----	----	----	----	----	----	1 Jul	19 Jul
LERE	----	25 Apr	----	Apr	17 May	25 May	----	25 Jun	25 Jun	27 Jun	----	----	10 Jul	15 Jul	15 Jul	10 Jul	1 Jul	19 Jul
LOOR	----	----	----	----	23 Apr	Apr	----	----	----	----	17 May	----	----	----	----	----	1 Jul	26 Jun
MAGR	----	5 May	----	May	----	----	----	15 Jun	----	15 Jun	----	----	----	15 Jul	----	20 Jul	----	----
MATA	----	----	----	May	23 Apr	----	----	----	23 Jun	20 Jul	1 Jul	----	----	----	----	----	20 Jul	----
OPPO	----	----	----	Apr	23 Apr	25 May	----	15 Jun	----	20 Jun	----	19 Jul	Sep	30 Aug	15 Aug	5 Aug	11 Aug	----
PHHO	----	----	----	Mar	23 Apr	25 May	----	----	10 Jun	15 Jun	----	----	----	----	----	17 Aug	1 Jul	----
PLPA	----	----	----	----	----	Jun	----	----	----	----	----	Jun	----	----	----	----	----	19 Jul
PLSA	----	----	----	----	----	----	----	----	23 Jun	----	----	----	25 Jul	20 Jul	25 Jul	----	----	----
PLSP	----	----	----	----	May	----	----	----	----	----	----	----	----	----	----	----	1 Jul	----
POSE	----	Mar	Mar	Mar	Mar	Apr	----	5 Jun	25 Jun	1 Jul	8 Jun	26 Jun	15 Jul	1 Jul	5 Jul	20 Jul	1 Jul	19 Jul
SIHY	----	Mar	Mar	Apr	----	----	----	15 Jul	10 Jul	15 Jul	Jun	----	20 Jul	30 Jul	30 Jul	30 Jul	1 Jul	10 Aug

TABLE V. (continued)

Exclosure		Growth Initiation						Full Bloom						Seed Dissemination					
	Species	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978
Bud Kimball (cont'd)	STVI	----	----	----	----	----	Apr	----	----	----	----	----	----	----	----	----	----	----	10 Aug
	SPCO	----	Mar	----	Apr	23 Apr	25 May	----	25 Jun	30 Jun	10 Jul	----	----	----	20 Jul	25 Jul	10 Aug	----	----
	SPCR	----	----	----	----	----	----	----	----	30 Jun	----	----	----	----	----	27 Jul	----	----	----
	STCO	----	Mar	Mar	Mar	Mar	----	----	25 Jun	5 Jul	10 Jul	Jun	----	25 Jul	30 Jul	30 Jul	5 Aug	1 Jun	19 Jul
	STVI	----	----	----	Mar	----	----	----	----	----	3 Jul	----	----	----	----	----	20 Jul	20 Jul	----
	TRDU	----	----	----	----	----	Apr	----	----	----	----	----	----	----	----	----	----	----	10 Aug
	VIAM	----	----	----	----	----	Apr	----	----	----	----	----	Jun	----	----	----	----	----	19 Jul
	VINU	----	----	----	----	23 Apr	Apr	----	----	15 Jun	----	17 May	----	----	----	----	----	1 Jul	----
	VUOC	----	----	----	----	May	----	----	----	----	----	Jun	----	----	----	----	----	·1 Jul	19 Jul
Cedar Mountain																			
	AGCR	----	5 Mar	Apr	Apr	20 Apr	Apr	Jun	17 Jun	Jun	20 Jun	Jun	----	----	----	Aug	10 Aug	19 Jul	30 Aug
	AGSP	----	----	Apr	Apr	20 Apr	29 Apr	5 Jul	30 Jun	20 Jun	1 Jul	----	----	----	----	5 Aug	20 Aug	----	30 Aug
	ARHO	----	----	----	----	20 Apr	----	----	----	----	----	----	----	----	----	----	----	----	----
	$ARHO_2$	----	Apr	----	Apr	----	----	Jun	5 Jun	----	3 Jun	----	----	----	----	----	5 Aug	----	8 Aug
	ARSP	----	Apr	----	Apr	20 Apr	29 Apr	Jul	Jul	25 Jun	5 Jul	Jun	----	----	----	Jul	1 Aug	27 Jun	8 Aug
	ARTR	----	24 May	15 May	May	19 May	29 Apr	Sep	Sep	Sep	Sep	----	----	----	----	----	Nov	5 Nov	----
	ASPU	----	Apr	Apr	Mar	----	May	----	30 May	25 May	May	----	----	30 Jun	17 Jun	25 Jun	1 Jul	27 Jun	----
	ATCO	----	May	May	May	19 May	Apr	Jul	25 Jun	Jul	----	----	----	----	----	----	1 Jul	----	----
	ATGA	----	Apr	Apr	Apr	19 May	----	Jun	5 Jun	5 Jun	1 Jun	----	----	----	----	----	1 Aug	----	----
	ATNU	----	----	----	----	----	22 May	----	----	----	----	----	Jun	----	----	----	----	----	----
	CHVI	May	May	10 May	May	19 May	22 May	----	Aug	Aug	18 Aug	18 Aug	30 Aug	----	----	----	Sep	5 Nov	----
	CORA	----	----	----	----	----	----	----	----	----	----	----	26 Jun	----	----	----	----	----	30 Aug
	CYMO	----	----	----	----	20 Apr	22 May	----	----	----	----	May	----	----	----	----	----	19 Jul	----
	EROV	----	----	May	----	20 Apr	May	----	Jun	10 Jun	Jun	----	Jun	----	Aug	1 Aug	5 Aug	19 Jul	----
	ERPU	----	----	10 May	Apr	20 Apr	----	Jun	15 Jun	----	20 Jun	----	----	Jul	Jul	Aug	20 Jul	----	----
	CELA	----	24 May	15 May	May	19 May	----	----	Jul	15 Jul	----	----	----	----	----	----	----	----	----
	HAAC	----	Apr	----	Apr	20 Apr	Jun	10 Jun	1 Jun	5 Jun	7 Jun	----	----	----	21 Jun	20 Jul	1 Jul	----	----
	KOAM	----	11 Mar	Mar	Mar	Apr	Apr	----	Jul	10 Jul	----	----	----	----	----	Aug	----	----	----
	OPPO	----	Apr	5 May	May	19 May	22 May	10 Jul	Jul	10 Jul	15 Jun	----	----	----	----	----	10 Aug	9 Sep	----
	ORHY	----	5 Mar	----	Apr	Apr	Apr	20 Jun	20 Jun	----	20 Jun	----	----	Aug	----	25 Jul	1 Aug	----	17 Jul
	PEFR	----	----	----	----	20 Apr	Apr	----	----	----	----	----	----	----	----	----	----	----	----

TABLE V. (continued)

Exclosure		Growth Initiation						Full Bloom						Seed Dissemination					
	Species	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978
Cedar Mountain (Cont'd)	PHHO	----	Apr	----	Apr	20 Apr	Apr	----	30 May	30 May	5 Jun	----	----	28 Jun	20 Jun	Jul	30 Jun	----	----
	PHLO	----	----	----	----	7 Jun	Apr	----	30 May	15 Jun	10 Jun	----	----	----	15 Jun	15 Jul	20 Jul	----	----
	POSE	----	15 Mar	----	Mar	20 Apr	29 Apr	Jun	15 Jun	15 Jun	15 Jun	----	Jun	Jul	5 Jul	Jul	10 Jul	27 Jun	17 Jul
	SAVE	----	----	----	----	----	Jun	----	----	----	----	----	----	----	----	----	----	----	----
	SIAL	----	----	----	----	----	Apr	----	----	----	----	----	----	----	----	----	----	----	17 Jul
	SIHY	----	10 Mar	----	----	20 Apr	Apr	28 Jun	15 Jun	20 Jun	15 Jun	----	----	1 Aug	Jul	Aug	10 Aug	----	17 Jul
	SILI	----	----	----	----	May	Apr	----	25 May	----	1 Jul	----	Jun	28 Jun	----	----	----	----	8 Aug
	SPCO	----	----	----	----	May	22 May	----	15 Jun	Jul	12 Jun	----	----	----	---	Aug	20 Jul	----	----
	TENU	----	Apr	10 May	Apr	19 May	22 May	Jul	Jul	Jul	----	----	----	----	----	Aug	20 Aug	----	30 Aug
	TOIN	----	----	----	----	20 Apr	----	----	----	----	----	----	----	----	----	----	----	----	----
Cumberland #3																			
	AGGL	----	10 Mar	----	May	19 May	May	15 Jun	10 Jun	----	10 Jun	----	Jun	Aug	Jun	----	10 Jul	7 Jun	----
	AGSM	----	Apr	Mar	Apr	Apr	Apr	25 Jul	30 Jun	Jul	----	Apr	----	20 Aug	5 Aug	Aug	----	----	8 Aug
	AGSP	----	Apr	Mar	Apr	Apr	Apr	28 Jun	25 Jun	Jul	20 Jul	----	26 Jun	5 Aug	30 Jul	25 Jul	20 Aug	----	8 Aug
	AMAL	----	20 May	----	May	19 May	May	----	----	30 Jun	10 Jun	----	26 Jun	----	----	----	10 Sep	9 Aug	----
	ANDI	----	May	----	Apr	19 May	May	----	Jun	----	1 Jun	7 Jun	----	Jun	20 Jun	----	15 Jul	19 Jul	----
	ARHO	----	----	----	----	19 May	----	----	----	----	----	----	----	----	----	----	----	9 Aug	----
	$ARHO_2$	----	May	----	May	----	Apr	Jun	24 May	Jun	1 Jun	----	6 Jun	5 Jul	10 Jul	Jul	1 Aug	----	17 Jul
	ARTR	Jun	20 May	May	May	Sep	May	Sep	Sep	5 Aug	15 Sep	----	----	----	----	----	Nov	5 Nov	4 Nov
	ASCA	----	----	----	----	----	----	----	10 Jul	----	----	----	----	----	----	----	----	----	----
	ASCI	----	May	----	----	19 May	Jun	----	6 Jun	10 Jun	1 Jun	----	----	28 Jun	25 Jun	Jul	15 Jul	----	----
	ASDI	----	Apr	----	May	----	----	5 Jul	6 Jun	Jun	3 Jul	----	----	30 Jul	15 Jul	Jul	20 Aug	----	----
	ASPU	----	----	----	----	19 May	May	----	----	----	----	----	6 Jun	----	----	----	----	28 Jun	17 Jul
	AST	----	----	----	----	----	----	----	10 Jun	12 Jun	----	----	----	----	20 Jul	----	----	----	----
	CANU	----	----	----	----	----	----	----	----	----	----	----	Jul	----	----	----	----	----	----
	CAS	----	12 Mar	----	May	May	Apr	5 Jul	30 Jun	Jun	15 Jun	28 Jun	26 Jun	25 Jul	----	Aug	20 Aug	9 Aug	8 Aug
	CHNA	----	----	----	----	Jun	----	----	----	----	----	9 Aug	----	----	----	----	----	7 Sep	----
	CHVI	----	20 May	----	May	19 May	Apr	5 Aug	15 Jul	Jul	5 Aug	9 Aug	8 Aug	----	----	----	1 Oct	5 Nov	4 Nov
	COPA	----	1 Jun	May	----	Apr	May	----	15 Jun	Jun	1 Jul	28 Jun	----	----	20 Jul	Jul	25 Aug	9 Aug	----
	CORA	----	6 Jun	----	May	----	6 Jun	----	----	----	10 Aug	----	8 Aug	----	----	----	30 Aug	----	30 Aug
	CRE	----	30 May	----	May	----	----	5 Jul	15 Jul	20 Jun	30 Jun	----	----	14 Aug	----	Jul	14 Jul	----	----

TABLE V. (continued)

Exlcosure	Growth Initiation						Full Bloom						Seed Dissemination					
Species	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978
Cumberland #3 (cont'd)																		
DEPI	----	----	----	----	----	----	----	----	----	----	----	----	----	20 Jun	----	----	----	----
ERMI	----	14 May	May	May	19 May	Apr	10 Aug	15 Jul	5 Aug	20 Aug	9 Aug	Aug	----	----	----	30 Oct	5 Nov	4 Nov
EROV	----	12 Mar	----	----	----	----	25 Jun	6 Jun	----	----	----	----	14 Aug	10 Jul	----	----	----	----
ERSU	----	----	----	----	----	----	----	25 Jun	----	----	----	----	----	25 Jul	----	----	----	----
LARE	----	----	----	----	----	Apr	----	----	----	----	----	----	----	----	----	----	----	26 Jun
LEPE	----	----	----	----	----	May	----	----	----	----	----	----	----	----	----	----	----	8 Aug
LOSI	----	----	----	----	Apr	May	----	----	----	----	----	Jun	----	----	----	----	28 Jun	----
MACA	----	----	----	----	----	Jul	----	----	----	----	----	8 Aug	----	----	----	----	----	----
MELO	----	Apr	----	Apr	Apr	----	5 Jul	30 May	15 Jun	15 Jun	May	----	----	Jul	----	10 Aug	7 Jun	----
OPPO	----	May	May	May	19 May	May	----	15 Jul	5 Jul	10 Aug	19 Jul	----	----	----	Aug	20 Sep	9 Aug	----
ORHY	----	12 Mar	----	Mar	Apr	Apr	5 Jul	30 Jun	----	10 Jun	----	----	----	----	----	20 Aug	9 Aug	8 Aug
PELA	----	----	----	----	----	----	20 Jun	15 Jun	25 Jun	----	----	----	10 Aug	15 Jul	Jul	20 Aug	----	----
PHHO	----	Mar	----	----	----	May	Jun	24 May	5 Jun	5 Jun	----	----	10 Jul	20 Jul	Jul	10 Jul	----	26 Jun
PHLO	----	Mar	----	May	19 May	May	Jun	6 Jun	15 Jun	15 Jun	----	Jun	10 Jul	20 Jul	Jul	10 Jul	28 Jun	26 Jun
PHMU	----	----	----	----	19 May	----	----	----	----	----	----	----	----	----	----	----	28 Jun	----
POFE	----	Mar	----	Apr	19 May	Apr	Jun	15 Jun	Jul	15 Jun	Jun	----	25 Jul	10 Jul	25 Jul	1 Aug	28 Jun	8 Aug
POSE	----	Mar	----	Apr	Apr	Apr	2 Jul	30 Jun	30 Jun	10 Jun	Jun	----	15 Jul	5 Jul	Jul	15 Jul	28 Jul	17 Jul
SEN	----	----	----	----	----	May	----	----	----	----	----	Jun	----	----	----	----	----	8 Aug
SIAL	----	----	----	----	----	May	----	----	----	----	----	Jun	----	----	----	----	----	17 Jul
SIHY	----	----	----	----	19 May	Apr	5 Jul	1 Jul	----	----	----	----	30 Jul	30 Jul	25 Jul	10 Aug	----	8 Aug
SILI	----	----	----	----	May	Apr	----	----	----	----	----	Jun	----	----	----	----	----	17 Jul
STCO	----	----	----	Apr	Apr	May	----	Jun	Jun	Jun	----	----	----	Jul	Jul	15 Jul	----	17 Jul
SYOC	----	----	----	----	19 May	May	----	----	----	----	----	----	----	----	----	----	7 Sep	8 Aug
TECA	----	24 May	----	May	19 May	May	10 Aug	10 Jul	5 Aug	1 Aug	Jul	8 Aug	----	----	----	30 Sep	7 Sep	30 Aug
TRDU	----	----	----	----	----	Apr	----	----	----	----	----	Jul	----	----	----	----	----	----
TRI	----	----	----	May	19 May	May	----	30 May	----	----	----	----	28 Jun	20 Jun	----	----	----	----
UMB	----	----	----	Apr	----	May	----	----	----	1 Jun	----	Jun	Jul	6 Jun	----	1 Jul	----	8 Aug
VIO	----	----	----	----	19 May	May	----	----	----	----	----	----	----	----	----	----	----	----
VINU	----	----	May	----	----	----	----	----	Jun	----	----	----	----	Jun	Jul	----	----	----
WYAM	----	----	----	----	----	May	----	----	----	----	----	----	----	----	----	----	----	----
ZYPA	----	12 Mar	----	Mar	Apr	Apr	----	8 Jun	12 Jun	10 Jun	7 Jun	----	Jun	15 Jun	Jun	20 Jul	28 Jun	8 Aug

TABLE V. (continued)

Exclosure	Growth Initiation						Full Bloom						Seed Dissemination					
Species	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978
Demer																		
AGSM	----	5 Mar	5 Mar	Mar	Mar	Apr	20 Jun	25 Jun	5 Jul	----	----	----	1 Nov	15 Aug	20 Aug	20 Aug	----	----
AGSP	----	5 Mar	1 Mar	Mar	Mar	Apr	10 Jun	25 Jun	1 Jul	15 Jun	----	----	1 Aug	30 Jul	5 Aug	30 Jul	11 Aug	20 Jul
ALTE	----	----	Apr	----	Apr	Apr	----	----	10 Jun	----	May	May	----	----	10 Jul	----	30 Jun	20 Jul
ARTR	----	20 May	22 Apr	Apr	23 Apr	25 May	10 Sep	20 Sep	10 Sep	5 Sep	----	----	15 Nov	15 Nov	10 Nov	Nov	----	1 Nov
AST	----	----	----	----	----	Jun	----	----	----	----	----	----	----	----	----	----	----	9 Aug
BOGR	----	30 Mar	25 Apr	Apr	Mar	Apr	5 Aug	5 Jul	15 Jul	12 Jul	----	Jun	10 Aug	30 Jul	5 Aug	20 Aug	----	20 Jul
BRTE	----	----	Mar	Mar	Mar	----	----	10 Jun	12 Jun	15 Jun	9 Jun	----	24 Jun	5 Jul	10 Jul	30 Jul	30 Jun	20 Jul
CAS	----	----	----	----	----	May	----	----	----	----	----	Jun		----	----	----	----	20 Jul
CHE	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CHAL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	2 Sep
CHEN	----	----	Apr	----	----	----	----	----	----	----	----	----	----	----	----	----	1 Oct	----
CHFR	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	9 Sep
CIR	----	----	Apr	May	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CRY	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	9 Aug
CYMO	----	----	Mar	----	----	----	----	----	1 Jun	----	----	----	----	----	20 Jun	----	----	----
DEGE	----	25 Mar	5 May	Apr	23 Apr	Apr	30 Jul	10 Jun	20 Jun	15 Jun	9 Jun	----	1 Aug	10 Jul	20 Jul	15 Jun	30 Jun	20 Jul
DEPI	----	----	----	----	Apr	Apr	----	----	----	----	9 Jun	----	----	----	----	----	----	20 Jul
ERPU	----	Mar	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
GIPU	----	----	----	----	----	Jun	----	----	----	----	----	Jul	----	----	----	----	----	2 Sep
LARE	----	----	May	May	----	Apr	----	5 Jun	15 Jun	28 May	----	----	Jul	15 Jul	20 Jul	20 Jul	20 Jul	9 Aug
LEDE	----	----	May	May	May	25 May	----	----	----	Jun	----	Jun	----	----	20 Jul	25 Jul	30 Jun	20 Jul
LUPU	----	----	20 May	----	----	----	----	----	25 Jun	----	----	----	----	----	20 Jul	----	----	----
OPPO	----	28 Mar	----	Apr	23 Apr	25 May	----	25 Jun	----	Jun	----	20 Jul	Aug	10 Aug	----	30 Jul	11 Aug	----
ORHY	----	----	5 Mar	Mar	----	May	5 Jun	----	10 Jun	Jul	----	----	20 Jul	----	20 Jul	Aug	20 Jul	9 Aug
PLSP	----	----	Mar	May	Apr	25 May	----	5 Jun	15 Jun	25 Jun	9 Jun	Jun	10 Jul	15 Jul	29 Jul	10 Aug	30 Jun	20 Jul
POSE	----	1 Mar	1 Mar	Mar	Mar	Apr	1 Jun	10 Jun	15 Jun	25 Jun	----	Jun	1 Jul	1 Jul	1 Jul	10 Aug	30 Jun	20 Jul
SAKA	Jun	----	----	Jun	----	----	----	----	----	----	----	----	Jul	----	----	----	----	----
SIAL	----	----	----	----	----	Apr	----	----	----	----	----	28 Jun	----	----	----	----	----	----
SIHY	----	5 Mar	1 Mar	Mar	Mar	----	----	25 Jun	15 Jun	15 Jun	----	----	2 Aug	25 Jul	30 Jul	30 Jul	20 Jul	9 Aug
SILI	----	----	Apr	May	17 May	----	----	----	May	10 Jul	9 Jun	----	----	----	20 Jul	10 Aug	11 Aug	----
SPCO	----	25 Apr	30 Apr	May	23 Apr	Apr	5 Jul	20 Jun	1 Jul	----	----	----	30 Jul	15 Jul	25 Jul	----	----	----
STCO	----	5 Mar	5 Mar	Mar	Mar	----	5 Jun	25 Jun	25 Jun	15 Jun	Jun	----	25 Jul	20 Jul	20 Jul	30 Jul	20 Jul	20 Jul

TABLE V. (continued)

Exlcosure	Growth Initiation						Full Bloom						Seed Dissemination					
Species	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978
Demer (cont'd)																		
TRDU	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	9 Aug
VUOC	----	----	May	May	----	Apr	----	10 Jun	12 Jun	25 Jun	----	----	----	20 Jun	Jul	30 JUL	30 Jun	20 Jul
Farson																		
AGSM	----	30 Mar	26 Apr	Apr	21 Apr	Apr	20 Jul	15 Jul	----	15 Jul	----	17 Jul	15 Oct	21 Sep	15 Oct	10 Sep	----	1 Sep
ALTE	----	----	----	Apr	21 Apr	Apr	----	----	25 Jun	25 May	----	7 Jun	----	----	Jul	10 Aug	----	17 Jul
ARHO	----	----	----	----	21 Apr	22 May	----	----	----	----	----	27 Jun	----	----	----	----	----	16 Aug
ARHO$_2$	----	----	May	May	18 May	Apr	----	----	----	10 Jul	----	7 Jun	----	----	----	10 Aug	----	17 Jul
ARTR	----	20 May	10 May	15 May	21 Apr	22 May	10 Sep	21 Sep	10 Sep	10 Sep	----	----	15 Nov	15 Nov	15 Nov	Nov	----	3 Nov
ASPU	----	15 Mar	30 Apr	Apr	Jul	Apr	Jun	23 May	10 Jun	20 Jun	----	Jun	Jun	30 Jun	20 Jun	5 Aug	----	17 Jul
ASSP	----	15 Mar	30 Apr	----	----	----	----	27 Apr	----	----	----	----	----	15 Jun	----	----	----	----
ATCO	----	27 Apr	26 Apr	Apr	7 Jun	Apr	20 Jul	10 Aug	20 Jun	Jul	----	----	15 Oct	Oct	Oct	Aug	----	3 Nov
CAEL	----	15 Apr	20 May	Apr	21 Apr	Apr	----	25 May	----	20 May	May	7 Jun	----	10 Jul	----	5 Aug	----	----
CHLE	----	----	----	----	----	Jun	----	----	----	----	----	----	----	----	----	----	----	3 Nov
CHER	----	Apr	----	----	----	----	15 Aug	----	----	----	----	----	----	15 Jul	----	----	----	----
CHVI	May	Apr	15 May	25 Apr	18 May	Apr	15 Aug	24 Aug	10 Aug	5 Aug	----	----	15 Oct	25 Sep	Sep	20 Sep	6 Nov	3 Nov
CRFL	----	----	----	----	----	22 May	----	----	----	----	----	----	----	----	----	----	----	----
CYMO	----	----	May	Apr	21 Apr	22 May	----	----	Jun	----	----	----	----	----	Jul	----	----	----
DEPI	----	----	----	----	----	Apr	----	----	----	----	----	27 Jun	----	----	----	----	----	17 Jul
ERCE	----	----	----	----	10 Aug	22 May	----	----	----	----	----	17 Jul	----	----	----	----	----	3 Nov
EROV	----	Apr	10 May	5 May	18 May	Apr	5 Jul	10 Jun	15 Jun	10 Jul	----	27 Jun	25 Jul	10 Jul	Jul	20 Aug	----	1 Sep
CELA	----	27 Apr	30 Apr	15 May	18 May	Apr	10 Aug	10 Sep	30 Jul	----	Sep	----	20 Oct	26 Oct	Oct	----	6 Nov	3 Nov
GACO	----	----	Apr	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
GRSP	----	Apr	15 May	25 Apr	18 May	Apr	----	----	5 Jun	25 Jul	----	----	----	10 Nov	1 Aug	20 Sep	----	1 Sep
XASA	----	----	----	----	18 May	Apr	----	----	----	----	----	Jul	----	----	----	----	----	----
HAAC	----	Apr	10 May	Apr	18 May	Apr	----	----	20 Jun	Jul	----	Jun	----	20 Jun	Jul	20 Aug	----	17 Jul
KOCR	----	----	15 May	Apr	21 Apr	22 May	----	----	----	20 Jun	----	Jun	----	----	----	20 Aug	----	----
LARE	----	----	----	----	----	Apr	----	----	----	----	----	Jun	----	----	----	----	----	17 Jul
LEPU	----	----	May	----	----	Jun	----	----	----	----	----	Jun	----	----	Aug	----	----	3 Nov
OPPO	May	27 Apr	10 May	Apr	18 May	22 May	25 Jul	10 Jul	Jul	5 Jul	----	----	Sep	24 Aug	15 Aug	15 Aug	6 Nov	----
ORHY	----	15 Apr	5 May	Apr	21 Apr	22 May	Jun	25 Jun	5 Jul	10 Jul	----	----	15 Oct	15 Jul	30 Jul	10 Aug	----	16 Aug
PECL	----	----	30 Apr	May	18 May	Apr	6 Jun	15 Jun	5 Jun	----	Apr	Jun	----	Jul	Jul	1 Aug	----	17 Jul

TABLE V. (continued)

Exclosure	Growth Initiation						Full Bloom						Seed Dissemination					
Species	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978
Farson (cont'd)																		
PHHO	May	30 May	5 May	Apr	18 May	22 May	----	5 Jun	10 Jun	1 Jun	----	7 Jun	27 Jun	5 Jul	Jul	10 Aug	----	16 Aug
POSE	----	15 Apr	5 May	Mar	21 Apr	Apr	Jun	6 Jun	20 Jun	25 Jun	----	Jun	20 Jul	20 Jul	20 Jul	5 Aug	----	17 Jul
SIHY	----	30 Mar	30 Apr	Apr	21 Apr	Apr	27 Jun	25 Jun	5 Jul	10 Jul	----	Jun	10 Aug	15 Jul	5 Aug	20 Aug	----	17 Jul
SILI	May	Apr	May	Apr	----	Apr	----	5 Jun	5 Jun	May	27 Jun	Apr	10 Jul	Jul	5 Jul	Jul	----	17 Jul
SPCO	----	10 May	5 May	May	Jul	Apr	----	10 Jun	5 Jul	Jun	----	27 Jun	----	10 Aug	30 Jul	20 Aug	6 Nov	----
STCO	----	15 Apr	5 May	Apr	21 Apr	22 May	10 Jul	30 Jun	10 Jul	Jul	----	----	10 Aug	15 Jul	30 Jul	15 Aug	----	17 Jul
TECA	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	16 Aug
Horse Creek																		
AGSM	----	5 Mar	Apr	Apr	----	Apr	25 Jun	5 Jul	10 Jul	----	----	Jul	10 Nov	20 Aug	20 Aug	15 Aug	----	3 Sep
AGSP	----	5 Mar	Apr	Mar	Mar	Mar	20 Jun	30 Jun	5 Jul	10 Jun	Jun	Jun	30 Jul	10 Jul	15 Jul	30 Jul	20 Jul	10 Aug
ALTE	----	----	----	Apr	----	Apr	----	----	9 Jun	May	----	Jun	----	----	10 Jul	20 Jul	----	20 Jul
ANDI	----	----	----	----	----	Apr	----	----	----	----	----	----	----	----	----	----	----	----
ARFE	----	15 Apr	Apr	Apr	Mar	----	20 Jun	10 Jul	15 Jul	Jul	----	----	1 Aug	15 Jul	20 Jul	10 Aug	30 Jun	----
ARHO$_2$	----	----	----	----	Mar	----	----	----	----	----	----	----	----	----	----	----	8 Jun	----
ARNO	----	15 May	15 May	May	23 Apr	----	20 Sep	20 Sep	15 Sep	10 Oct	----	----	5 Nov	5 Nov	5 Nov	Nov	----	----
ARTR	----	20 May	20 May	May	23 Apr	Apr	10 Sep	20 Sep	20 Sep	10 Oct	----	24 Sep	20 Nov	10 Nov	5 Nov	Nov	----	----
ASPU	----	Apr	Apr	----	23 Apr	----	----	20 May	25 May	----	----	----	25 Jun	15 Jun	20 Jun	----	8 Jun	----
BRCO	----	----	Apr	----	----	----	----	25 Jun	Jun	----	----	----	2 Aug	25 Jul	20 Jul	----	----	----
BRJA	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	10 Aug
BRTE	----	----	Apr	May	Mar	Mar	----	15 Jun	30 Jun	May	----	----	25 Jul	5 Jul	10 Jul	5 Jul	30 Jun	20 Jul
CAAN	----	----	----	----	Mar	Mar	----	----	----	----	8 Jun	Jun	----	----	----	----	30 Jun	20 Jul
CANU	----	30 May	Apr	May	----	----	20 Jun	15 Jun	5 Jul	Jun	----	30 Jun	15 Jul	15 Jul	20 Jul	5 Aug	----	20 Jul
CAS	----	20 Mar	Apr	Apr	----	----	----	5 Jun	10 Jun	10 Jun	----	----	20 Jul	25 Jul	15 Jul	2 Jul	----	----
CHDE	----	----	----	May	May	Apr	----	----	5 Jul	Jun	8 Jun	----	----	----	25 Jul	Aug	----	3 Sep
CIR	----	----	----	----	23 Apr	----	----	----	----	----	----	----	----	----	----	----	30 Jun	----
COPA	----	----	May	May	23 Apr	Mar	----	----	30 Jun	----	17 May	----	----	----	Jul	20 Sep	----	----
CRAC	----	----	----	----	----	Apr	----	----	----	----	----	30 Jun	----	----	----	----	----	20 Jul
CRBR	----	----	----	----	23 Apr	----	----	----	----	----	8 Jun	----	----	----	----	----	30 Jun	----
CRE	----	----	May	Apr	----	----	----	25 May	25 Jun	10 Jun	----	----	----	Jun	Jul	10 Jul	----	----
CRFL	----	----	----	----	23 Apr	----	----	----	----	----	----	----	----	----	----	----	30 Jun	----
CRP	----	----	Apr	----	----	----	30 Jun	10 Jun	10 Jun	----	----	----	2 Aug	5 Jul	10 Jul	----	----	----

TABLE V. (continued)

Exclosure	Growth Initiation						Full Bloom						Seed Dissemination					
Species	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978
Horse Creek (cont'd)																		
CRY	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CYMO	----	----	Apr	----	----	----	----	----	5 Jun	----	----	----	----	----	20 Jun	----	----	----
DEPI	----	----	----	May	Apr	Apr	30 Jun	----	5 Jun	10 Jun	May	Jun	Jul	----	10 Jul	10 Jul	30 Jun	20 Jul
ERPU	----	Apr	Apr	May	----	Apr	25 Jun	20 Jun	25 Jun	7 Jun	----	30 Jun	20 Jul	10 Jul	10 Jul	30 Jul	----	20 Jul
CELA	----	25 Apr	10 May	May	Apr	Apr	25 Jul	20 Jul	20 Jul	25 Sep	----	20 Jul	20 Sep	20 Sep	20 Sep	Nov	----	----
GACO	----	----	May	Apr	23 Apr	----	----	5 Jun	30 Jun	Jun	8 Jun	----	30 Jun	5 Aug	25 Jul	20 Aug	20 Jun	----
XASA	----	----	----	----	23 Apr	----	----	----	----	----	17 Sep	----	----	----	----	----	----	----
HAAC	----	----	----	----	23 Apr	----	----	----	----	----	----	----	----	----	----	----	8 Jun	----
LARE	----	----	----	May	17 May	Apr	26 Jun	----	20 Jun	Jun	----	Jun	23 Jul	----	25 Jul	25 Jul	30 Jun	20 Jul
LASE	----	----	----	----	----	----	----	----	----	----	----	10 Aug		----	----	----	----	----
LEDE	----	----	----	----	----	Apr	----	----	----	----	----	----	----	----	----	----	----	20 Jul
LERE	----	----	----	----	----	----	----	----	30 Jun	----	----	----	----	----	25 Jul	----	----	----
LOOR	----	----	----	----	----	Apr	----	----	----	----	----	----	----	----	----	----	----	20 Jul
MACA	----	30 Mar	----	May	----	May	25 Jun	20 Jun	----	10 Jul	----	20 Jul	25 Jul	25 Jul	----	20 Aug	----	----
MAGR	----	----	Jun	May	----	May	----	20 Jun	Jul	----	----	----	----	Jul	----	25 Aug	----	----
OPPO	----	----	May	Apr	23 Apr	Apr	5 Jun	20 Jun	9 Jun	1 Jul	----	30 Jun	----	20 Aug	10 Sep	10 Aug	20 Jul	24 Sep
ORHY	----	5 Mar	Apr	May	----	----	----	5 Jun	1 Jul	Jun	8 Jun	----	5 Aug	15 Jul	25 Jul	15 Aug	20 Jul	24 Sep
PECL	----	----	----	----	Apr	Apr	----	----	----	----	8 Jun	Jun	----	----	----	----	30 Jun	----
PEN	----	----	Apr	Apr	----	----	----	----	15 Jul	12 Jun	----	----	----	----	30 Jul	10 Jul	----	----
PHHO	----	----	Apr	Apr	23 Apr	Apr	----	30 May	5 Jun	10 Jun	----	25 May	26 Jun	15 Jun	5 Jul	25 Jun	30 Jun	30 Jun
POSE	----	20 Feb	10 Mar	Apr	Mar	Apr	----	20 Jun	25 Jun	15 Jun	8 Jun	----	15 Jul	5 Jul	5 Jul	5 Aug	30 Jun	10 Aug
SAKA	26 Jun	20 Jun	15 Jun	Jun	23 Apr	----	----	25 Aug	5 Aug	25 Aug	17 Sep	----	----	Sep	----	Sep	----	----
SIHY	----	5 Mar	Apr	May	Mar	Mar	20 Jun	1 Jul	5 Jul	10 Jun	8 Jun	----	5 Aug	10 Jul	15 Jul	30 Jul	10 Aug	----
SPCO	----	----	----	May	23 Apr	Apr	----	5 Jul	5 Jul	10 Jun	8 Jun	----	1 Aug	25 Jul	25 Jul	25 Jul	10 Aug	20 Jul
STCO	----	10 Mar	Apr	May	Mar	Apr	20 Jun	1 Jul	1 Jul	15 Jun	Jun	----	5 Aug	15 Jul	15 Jul	15 Aug	20 Jun	----
TRDU	----	20 May	15 May	Apr	----	Apr	----	15 Jun	30 Jun	Jun	----	Jun	----	15 Jul	15 Jul	15 Jul	----	20 Jul
VIO	----	5 Mar	----	Apr	----	----	----	20 Jun	25 Jun	Jun	----	----	25 Jun	10 Jul	10 Jul	15 Jul	----	----
VINU	----	----	----	----	----	Apr	----	----	----	----	----	----	----	----	----	----	----	----
VIVA	----	----	----	----	Apr	----	----	----	----	----	17 May	----	----	----	----	----	8 Jun	----
XASA	----	----	----	----	----	Mar	----	----	----	----	----	24 Sep	----	----	----	----	----	----
YUGL	----	----	----	----	17 May	----	----	----	----	----	8 Jun	----	----	----	----	----	30 Jun	----
ZYVE	----	20 Apr	Apr	Apr	Mar	Apr	----	30 May	30 May	23 May	----	----	10 Jul	10 Jul	10 Jul	20 Jun	8 Jun	20 Jul

TABLE V. (continued)

Exclosure	Growth Initiation						Full Bloom						Seed Dissemination					
Species	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978
Mesa Antelope																		
AGSM	----	30 Mar	Mar	Apr	21 Apr	Apr	Jul	Jul	Jul	----	----	----	Sep	Aug	10 Aug	----	----	----
ALTE	----	----	----	----	21 Apr	----	----	----	----	----	----	----	----	----	----	----	28 Jun	----
ARNO	----	----	Jun	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ARHO	----	----	----	----	Aug	----	----	----	----	----	----	----	----	----	----	----	----	----
ARHO$_2$	----	----	----	May	----	Apr	Jun	----	15 Jun	Jun	----	6 Jun	Jul	----	Jul	5 Aug	----	17 Jul
ARTR	May	23 May	May	May	21 Apr	22 May	10 Sep	20 Sep	10 Sep	10 Sep	7 Sep	Aug	14 Oct	5 Nov	5 Nov	10 Nov	5 Nov	4 Nov
ASCI	----	----	----	----	----	May	----	----	----	----	----	6 Jun	----	----	----	----	----	----
ASPU	----	----	----	----	----	----	----	----	15 Jun	----	----	----	----	----	Jul	----	----	----
ASSP	----	----	----	May	21 Apr	22 May	----	----	15 Jun	----	----	6 Jun	----	----	Jul	Oct	----	----
ATGA	----	----	----	May	----	----	1 Aug	----	----	25 Jul	----	----	----	----	----	30 Sep	----	----
ATNU	----	----	----	----	----	Jun	----	----	----	----	----	26 Jun	----	----	----	----	----	8 Aug
CAEL	----	May	May	Apr	21 Apr	22 May	Jun	Jun	Jun	20 Jun	----	6 Jun	Jul	Jul	Jul	Aug	19 Jul	8 Aug
CHVI	May	23 May	May	May	May	22 May	10 Sep	Sep	1 Sep	30 Aug	9 Aug	8 Aug	14 Oct	Oct	Oct	Oct	5 Nov	30 Aug
CORA	----	----	----	----	----	Jun	----	----	----	----	----	----	----	----	----	----	----	----
CYMO	----	----	----	----	Mar	----	----	----	----	----	May	----	----	----	----	----	28 Jun	----
ERCA$_2$	----	Mar	----	Apr	May	22 May	----	25 May	15 Jun	20 Jul	Jun	26 Jun	10 Aug	20 Jun	Jul	Oct	19 Jul	8 Aug
EROV	----	Mar	----	May	21 Apr	22 May	Jun	30 May	20 Jun	13 Jul	----	26 Jun	25 Jul	Jul	Jul	Oct	----	8 Aug
CELA	May	20 May	May	May	May	Apr	1 Aug	Aug	Jul	25 Aug	----	----	Oct	Oct	25 Oct	Oct	5 Nov	4 Nov
HAAC	----	----	----	Apr	21 Apr	May	----	----	15 Jun	12 Jun	----	26 Jun	Jul	----	Jul	13 Jul	----	17 Jul
LEPU	----	May	May	----	May	May	Jun	15 Jun	30 Jun	----	----	26 Jun	Jul	Jul	10 Aug	----	----	8 Aug
MACA	May	----	----	Jun	May	May	15 Aug	1 Jun	20 Jun	20 Aug	9 Aug	8 Aug	----	Oct	1 Oct	5 Sep	5 Nov	4 Nov
MATA	----	----	----	----	May	----	----	----	----	----	----	----	----	----	----	----	----	----
OPPO	----	May	----	May	May	22 May	1 Aug	Jul	Jul	20 Jul	19 Jul	Jul	Sep	Sep	Aug	30 Sep	7 Sep	----
ORHY	----	30 Mar	----	Apr	21 Apr	22 May	10 Jul	30 Jun	5 Jul	1 Jul	Jun	----	10 Aug	----	1 Aug	20 Aug	5 Nov	8 Aug
PELA	----	----	----	May	21 Apr	----	17 Jul	Jul	----	22 Jul	Sep	----	----	----	----	20 Aug	5 Nov	----
PHHO	----	30 Mar	----	Apr	21 Apr	22 May	----	23 May	15 Jun	10 Jun	7 Jun	6 Jun	20 Jul	20 Jun	30 Jul	30 Jul	28 Jun	17 Jul
POFE	----	----	----	----	----	22 May	----	----	----	----	----	Jun	----	----	----	----	----	8 Aug
POSE	----	Mar	----	Apr	21 Apr	Apr	20 Jun	10 Jun	30 Jun	20 Jun	----	26 Jun	1 Aug	----	Jul	20 Aug	28 Jun	17 Jul
SIHY	----	Mar	----	Apr	21 Apr	Apr	Jul	Jul	Jul	1 Jul	28 Jun	----	5 Aug	----	4 Aug	15 Aug	19 Jul	17 Jul
SILI	----	----	----	Apr	----	Apr	30 Jun	----	Jun	20 Jun	----	26 Jun	10 Jul	----	----	10 Aug	----	17 Jul
SPCO	----	----	----	----	----	Jun	----	----	----	----	----	Jun	----	----	----	----	----	----
STCO	----	30 Mar	----	Apr	21 Apr	Apr	10 Jul	Jul	Jul	1 Jul	19 Jul	----	15 Aug	----	Jul	1 Aug	7 Sep	17 Jul
TRGY	----	----	----	Apr	May	22 May	----	----	5 Jun	----	----	----	15 Jul	----	20 Jun	----	----	----

TABLE V. (continued)

Exclosure	Growth Initiation						Full Bloom						Seed Dissemination					
Species	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978
Owl Draw																		
ACLA	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	4 Sep
AGSM	----	----	Apr	Apr	17 Apr	Apr	16 Jul	5 Jul	17 Jul	17 Jul	----	----	----	5 Aug	25 Jul	Oct	12 Aug	4 Sep
AGSP	----	----	Apr	Mar	17 Apr	Apr	5 Jul	5 Jul	14 Jul	Jul	----	Jul	3 Aug	25 Jul	28 Jul	25 Aug	18 Jul	4 Sep
ALTE	----	----	----	----	Mar	Apr	----	----	----	----	----	----	----	----	----	----	12 Aug	29 Sep
ANRO	----	----	----	----	Apr	26 May	----	----	----	----	----	----	----	----	----	----	18 Jul	----
ARHO	----	----	----	----	Apr	May	----	1 Jun	15 Jul	14 Jul	----	1 Jul	----	20 Jun	30 Jul	2 Aug	18 Jul	24 Jul
ARHO$_2$	----	----	----	May	Mar	May	----	----	Jun	Jun	----	----	----	Jul	25 Jul	30 Jul	2 Jul	----
ARNO	----	30 May	May	May	18 May	26 May	----	20 Sep	20 Sep	5 Sep	----	29 Sep	----	----	----	Nov	17 Nov	----
ARTR	----	30 May	May	May	16 May	26 May	----	20 Sep	20 Sep	5 Sep	18 Sep	29 Sep	----	----	----	Nov	17 Nov	----
ASPU	----	----	Apr	Apr	Apr	Apr	----	May	25 May	10 Jun	----	9 Jun	----	Jul	20 Jul	25 Jul	2 Jul	11 Aug
AST	----	----	Apr	Apr	Apr	Apr	----	Jun	10 Jun	10 Jun	----	----	----	Jul	30 Jul	10 Aug	18 Jul	11 Aug
ASDR	----	----	Apr	Apr	Apr	----	----	Jun	10 Jun	15 Jul	----	----	----	Jul	10 Jul	25 Aug	2 Jul	----
ASMI$_2$	----	----	Apr	Apr	Apr	Apr	----	Jun	10 Jun	Jul	----	1 Jul	----	Jul	10 Jul	15 Aug	2 Jul	4 Sep
BASA	----	5 Jun	1 Jun	May	Apr	Apr	----	Jun	Jun	Jun	16 May	Jun	----	Jul	Jul	12 Jul	2 Jul	24 Jul
CACH	----	----	----	----	17 Apr	Apr	----	----	----	----	----	1 Jul	----	----	----	----	2 Jul	24 Jul
CAMI	----	----	----	----	----	----	----	----	----	----	----	----	----	Jul	14 Jul	----	----	1 Jul
CANU	----	May	May	May	17 Apr	----	16 Jul	5 Jul	14 Jul	1 Jul	2 Jul	----	----	10 Aug	Aug	10 Aug	18 Jul	11 Aug
CAS	----	----	----	Apr	----	----	----	----	6 Jun	25 Jun	----	----	----	Jul	28 Jul	25 Jul	----	----
CHDO	----	----	----	----	----	May	----	----	----	----	----	1 Jul	----	----	----	----	----	24 Jul
CHVI	----	May	May	May	17 Apr	----	Aug	Aug	Aug	25 Aug	12 Aug	----	----	Sep	25 Sep	10 Oct	----	----
CIR	----	----	----	----	Apr	May	----	----	----	----	----	----	----	----	----	----	12 Aug	11 Aug
CORA	----	----	----	----	----	----	----	----	----	----	----	11 Aug	----	----	----	----	----	4 Sep
CRBR	----	----	----	----	----	----	----	Jun	Jun	----	----	----	----	Jul	Jul	----	----	----
CRAC	----	May	May	May	Apr	Apr	----	Jun	Jun	Jun	----	----	----	Jul	14 Jul	17 Jul	2 Jul	24 Jul
CYMO	----	May	May	May	Apr	Apr	----	Jun	5 Jun	10 Jun	May	Jun	----	Jun	1 Jul	20 Jul	2 Jul	24 Jul
DEPI	----	Jun	----	----	----	----	Jul	Jun	----	----	----	----	----	Jul	----	----	----	----
DOPU	----	Jun	----	----	Apr	----	Jul	Jun	----	----	16 May	----	----	Jul	----	----	2 Jul	----
EROC	----	----	----	May	17 Apr	Apr	----	----	10 Jun	5 Jun	May	1 Jul	----	----	20 Jul	21 Jul	2 Jul	24 Jul
CELA	----	----	May	May	16 May	----	----	Jun	5 Jul	30 Jul	Jul	11 Aug	----	Sep	20 Sep	Sep	----	----
GRSQ	----	----	----	----	----	----	----	----	----	----	----	11 Aug	----	----	----	----	----	----
HAAC	----	May	May	May	17 Apr	Apr	----	10 Jun	15 Jun	Jun	----	1 Jul	Jul	10 Jul	5 Jul	20 Jul	2 Jul	24 Jul
JUOS	----	May	May	May	16 May	----	----	Jul	5 Jul	15 Jul	----	----	----	Aug	Aug	Oct	2 Jul	----

TABLE V. (continued)

Exclosure	Growth Initiation						Full Bloom						Seed Dissemination					
Species	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978
Owl Draw (cont'd)																		
JUSC	----	May	May	May	16 May	26 May	----	Jul	5 Jul	15 Jul	----	----	----	Aug	Aug	Oct	18 Jul	----
KOCR	----	----	Apr	Apr	17 Apr	26 May	Jul	5 Jun	Jun	Jun	----	1 Jul	1 Aug	15 Jun	20 Jul	20 Aug	2 Jul	24 Jul
LASC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	4 Sep
LERE	----	----	----	May	17 Apr	26 May	20 Jul	20 Jun	5 Jul	Jun	17 Apr	----	Aug	10 Jul	20 Jul	15 Jul	2 Jul	24 Jul
LILE	----	May	May	Jun	17 Apr	Apr	----	Jun	25 Jun	1 Jul	----	1 Jul	----	Jul	25 Jul	10 Aug	2 Jul	24 Jul
MAVI	----	----	----	----	----	----	----	Jul	1 Jul	----	----	----	----	Jul	Jul	----	----	----
MAGR	----	May	May	Jun	17 Apr	----	----	15 Jun	10 Jun	Jun	----	----	20 Jul	Jul	Jul	10 Aug	12 Aug	11 Aug
MELO	----	----	----	----	----	26 May	----	----	----	----	----	Jun	----	----	----	----	----	----
OPPO	----	----	May	May	16 May	26 May	----	Jun	Jun	10 Jul	----	----	----	Aug	Aug	10 Jul	----	----
ORHY	----	----	Apr	Apr	17 Apr	26 May	----	25 Jun	Jun	10 Jul	----	----	----	10 Jul	25 Jul	5 Aug	18 Jul	24 Jul
PECL	----	----	----	----	17 Apr	Apr	----	25 Jun	Jun	10 Jul	----	Jun	----	10 Jul	25 Jul	5 Aug	2 Jul	24 Jul
PEN	----	----	May	May	----	----	----	Jun	30 Jun	1 Jul	----	----	----	Jul	20 Jul	15 Aug	----	----
PHHO	----	----	May	May	17 Apr	26 May	----	1 Jun	1 Jun	5 Jun	----	9 Jun	----	25 Jun	10 Jul	15 Jul	2 Jul	1 Jul
POFE	----	----	Apr	Apr	17 Apr	Apr	----	15 Jun	10 Jun	10 Jun	May	----	20 Jul	10 Jul	Jul	30 Jul	2 Jul	24 Jul
POSE	----	----	Apr	Apr	17 Apr	Apr	----	17 Jun	10 Jun	8 Jun	----	----	20 Jul	10 Jul	Jul	26 Jul	2 Jul	11 Aug
SECA	----	----	May	Apr	Apr	Apr	10 Jul	10 Jun	15 Jun	3 Jun	----	----	----	----	----	12 Jul	2 Jul	11 Aug
SELA	----	----	----	Apr	17 Apr	Apr	----	----	30 Jun	1 Jul	----	Jul	----	Jul	25 Jul	25 Aug	2 Jul	11 Aug
SPCO	----	----	Apr	Apr	16 May	Apr	----	25 Jun	25 Jun	25 Jun	----	1 Jul	----	10 Jul	15 Jul	30 Jul	----	----
STCO	----	----	Apr	Apr	17 Apr	----	----	25 Jun	25 Jun	25 Jun	----	----	----	10 Jul	15 Jul	30 Jul	2 Jul	24 Jul
TRDU	----	----	----	Jun	----	----	----	----	Jun	20 Jul	----	----	----	----	5 Jul	2 Jul	2 Jul	24 Jul
TRGY	----	----	----	----	Apr	Apr	----	----	----	----	----	----	----	----	----	----	2 Jul	1 Jul
TRI	----	----	----	Apr	----	----	----	----	Jun	5 Jun	----	----	----	----	1 Jul	Jul	----	----
VIAM	----	----	May	May	Apr	Apr	----	10 Jun	15 Jun	Jun	----	1 Jul	10 Jul	15 Jun	5 Jul	Jul	2 Jul	----
VIO	----	----	----	----	Mar	Apr	----	----	----	----	16 May	Jul	----	----	----	----	2 Jul	----
XASA	----	----	----	----	----	Apr	----	----	----	----	----	----	----	----	----	----	----	----
ZYVE	----	----	----	----	----	Apr	----	----	----	----	----	----	----	----	----	----	----	----
Red Wash																		
AGSM	----	30 Mar	Mar	Apr	20 Apr	29 Apr	Jul	Jul	Jul	Jul	----	----	Aug	5 Aug	Aug	10 Aug	----	----
AGSP	----	28 Mar	Mar	Mar	Apr	29 Apr	Jul	Jul	Jul	15 Jun	----	----	Aug	30 Jul	Aug	10 Sep	----	----
ALTE	----	May	----	May	Apr	22 May	----	5 Jun	15 Jun	10 Jun	----	----	Jul	Jul	25 Jul	10 Jul	15 Aug	4 Aug
ARCO	----	----	----	----	----	----	----	----	25 Jun	----	----	----	----	----	----	----	----	----

TABLE V. (continued)

Exlcosure	Growth Initiation q						Full Bloom						Seed Dissemination					
Species	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978
Red Wash (cont'd)																		
ARHO	----	30 Mar	----	Jun	20 May	22 May	30 Jun	5 Jun	5 Jul	15 Jul	27 Jun	----	Jul	20 Jun	Aug	10 Aug	15 Aug	28 Aug
ARNO	----	May	----	----	----	----	----	Aug	----	----	----	----	----	Oct	----	----	----	----
ARTR	----	May	May	May	20 May	29 Apr	----	Aug	Aug	10 Sep	9 Sep	----	----	Oct	Oct	Nov	4 Nov	6 Nov
ASDI	----	----	May	Apr	Apr	22 May	----	1 Jun	Jul	15 Jun	----	Jun	----	Aug	Jul	18 Aug	----	----
ASKE	Jun	May	----	May	Jun	22 May	----	1 Jun	----	18 Aug	----	----	----	Aug	----	Oct	----	----
ASPU	----	May	May	Apr	Apr	22 May	20 Jun	7 Jun	1 Jun	30 May	6 Jun	----	Jul	20 Jun	Jul	20 Jul	27 Jun	17 Jul
CHDO	----	30 Mar	May	Apr	20 May	22 May	30 Jul	7 Jun	Jul	30 Jun	----	----	----	1 Aug	----	15 Aug	----	17 Jul
CHNA	----	1 Jun	Jun	May	20 May	29 Apr	Aug	Aug	----	30 Aug	15 Aug	28 Aug	----	----	----	Oct	4 Nov	6 Nov
CHVI	----	May	Jun	May	20 May	29 Apr	Aug	Aug	Aug	10 Aug	15 Aug	Aug	----	----	----	Oct	4 Nov	6 Nov
CRFL	----	May	May	May	Apr	22 May	30 Jun	20 Jun	26 Jun	12 Jul	15 Jul	Jun	----	5 Aug	Jul	18 Aug	15 Aug	4 Aug
CYMO	----	----	----	----	Apr	22 May	----	----	----	----	----	----	----	----	----	----	27 Jun	----
DEPI	----	May	----	----	----	----	Jun	----	----	----	----	----	----	Jul	----	----	----	----
ERAS	----	May	May	Apr	Apr	----	20 Jun	5 Jun	13 Jun	15 Jun	Jun	----	----	30 Jul	Jul	20 Jul	27 Jun	----
ERMI	----	May	----	May	Apr	22 May	----	5 Jul	----	22 Jul	15 Aug	28 Aug	----	Aug	----	25 Sep	4 Nov	6 Nov
EROV	----	May	May	May	20 May	29 Apr	25 Jun	30 Jun	30 Jun	20 Jun	Jun	17 Jul	5 Aug	Jul	Jul	25 Aug	27 Jun	4 Aug
CELA	----	May	May	May	20 May	29 Apr	----	5 Aug	Aug	25 Aug	----	Jun	----	----	----	Oct	4 Nov	6 Nov
GIAG	----	----	----	Apr	----	----	25 Jun	15 Jun	----	10 Jun	----	----	----	15 Aug	----	15 Jul	----	----
GICO	----	----	----	----	May	Jun	----	----	----	----	6 Jun	Jun	----	----	----	----	27 Jun	----
GRSP	----	May	May	May	Apr	22 May	Jun	5 Aug	10 Jul	----	----	5 Jun	Jul	----	30 Jul	----	----	4 Aug
HAAC	----	Mar	----	Apr	20 May	----	25 Jun	5 Jun	20 Jun	10 Jun	----	----	----	Jul	Jul	1 Aug	27 Jun	----
LEPU	----	----	----	May	20 May	22 May	28 Jun	15 Jun	30 Jun	15 Jun	27 Jun	----	Jul	5 Aug	25 Jul	18 Aug	15 Aug	4 Aug
MACA	----	----	----	May	Aug	----	----	10 Aug	----	18 Aug	Sep	28 Aug	----	Aug	----	Oct	----	6 Nov
OPPO	----	----	----	May	20 May	22 May	----	Jul	Jul	Jul	15 Jul	28 Aug	----	25 Jul	Aug	1 Sep	15 Aug	4 Aug
ORFA	----	May	----	May	15 Aug	----	----	10 Jun	----	Jun	Sep	----	----	30 Jun	----	5 Jul	4 Nov	----
ORHY	----	11 Mar	Mar	Apr	Apr	May	10 Jul	5 Jul	5 Jul	Jun	Jun	----	5 Aug	30 Jul	25 Jul	6 Aug	15 Jul	4 Aug
PEN	----	Mar	----	Apr	Apr	29 Apr	30 Jun	15 Jun	30 Jun	20 Jun	27 Jun	Jun	Aug	Aug	Aug	6 Aug	15 Aug	4 Aug
PHHO	----	Mar	----	Apr	Apr	29 Apr	----	1 Jun	5 Jun	10 Jun	----	Jun	Jun	20 Jun	25 Jun	20 Jul	27 Jun	17 Jul
POSE	----	11 Mar	Mar	Apr	20 Apr	Apr	Jun	25 Jun	Jun	Jun	----	Jun	Jul	Aug	Jul	18 Aug	9 Sep	17 Jul
SIHY	----	30 Mar	Mar	Apr	----	Apr	----	Jul	Jul	30 Jun	----	----	----	30 Jul	30 Jul	18 Aug	----	29 Aug
SILI	----	----	----	May	Apr	22 May	20 Jun	1 Jun	20 Jun	10 Jun	6 Jun	----	Jul	15 Jun	Jun	18 Aug	27 Jun	----
STCO	----	Mar	20 Mar	Apr	20 May	22 May	Jul	Jul	Jul	30 Jun	----	----	Aug	Jul	Jul	20 Aug	----	4 Aug
TECA	----	May	May	May	20 May	29 Apr	Aug	Jul	5 Aug	23 Jul	15 Aug	4 Aug	Aug	Aug	Aug	20 Sep	4 Nov	6 Nov
VINU	----	----	----	----	Apr	22 May	----	----	----	----	----	----	----	----	----	----	----	15 Aug

TABLE V. (continued)

Exclosure	Growth Initiation						Full Bloom						Seed Dissemination					
Species	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978
Shoshoni Ant #1																		
AGSM	----	28 Mar	5 Apr	Apr	23 Apr	Apr	5 Jul	15 Jul	18 Jul	15 Jul	----	----	Oct	30 Oct	30 Oct	1 Oct	----	19 Jul
ALTE	----	----	May	Apr	Apr	Apr	Jun	Jun	15 Jun	May	----	----	30 Jun	15 Jun	30 Jun	15 Jun	Jul	19 Jul
ARTR	----	22 May	May	May	23 Apr	24 May	15 Sep	10 Oct	10 Oct	Sep	----	----	9 Nov	9 Nov	1 Nov	Nov	19 Nov	23 Sep
ASPU	----	5 Mar	Mar	----	----	May	Jun	5 Jun	20 May	----	----	9 Jun	15 Jul	15 Jun	10 Jul	----	----	----
BOGR	----	15 Apr	15 Apr	Apr	Mar	----	7 Aug	20 Jul	20 Jul	6 Jul	----	----	9 Nov	10 Nov	Nov	Sep	----	9 Aug
BRTE	----	5 Mar	Apr	May	----	----	----	10 Jun	30 Jun	10 Jun	8 Jun	----	5 Jul	10 Jul	10 Jul	6 Jul	Jun	19 Jul
CYMO	----	----	----	----	Apr	----	----	----	30 May	----	17 May	----	----	----	20 Jun	----	8 Jun	----
DEPI	----	----	----	May	Apr	----	----	----	----	May	May	----	----	----	10 Jul	1 Jul	Jun	----
ERPU	----	21 Feb	Mar	Apr	----	Apr	27 Jun	30 May	30 Jun	17 Jun	Jun	28 Jun	15 Jul	15 Jun	20 Jul	25 Jul	Jun	19 Jul
CELA	----	----	----	----	----	----	30 Jul	----	----	----	----	----	Sep	----	----	----	----	----
LARE	----	----	----	----	----	----	----	----	----	----	----	----	Jul	----	----	----	----	----
LEDE	----	----	----	----	----	----	----	----	----	----	----	----	5 Jul	----	20 Jul	----	----	----
LUPU	----	----	----	May	----	May	----	25 Jun	15 Jun	----	----	----	----	----	25 Jul	1 Jul	----	9 Aug
MACA	----	----	----	----	May	----	----	25 Jun	----	----	8 Jun	----	----	----	Jul	----	----	----
OPPO	----	20 Apr	Apr	Apr	23 Apr	24 May	5 Jul	20 Jun	5 Jul	Jun	Jun	19 Jul	15 Aug	----	Aug	Aug	Jun	----
ORHY	----	5 Mar	5 Apr	Apr	Apr	Jun	Jun	10 Jun	30 Jun	Jun	Jun	----	5 Aug	15 Jul	15 Jul	30 Jul	Jul	19 Jul
PHHO	----	5 Mar	10 Apr	Apr	23 Apr	24 May	----	10 May	30 May	May	8 Jun	Jun	25 Jun	5 Jul	5 Jul	10 Jul	Jul	----
PLPA	----	5 Mar	Apr	----	17 May	24 May	1 Jul	5 Jun	25 Jun	----	Jun	Jun	1 Aug	15 Jul	25 Jul	----	Jun	19 Jul
POSE	----	21 Feb	30 May	Apr	Apr	----	Jun	10 Jun	10 Jun	15 Jun	----	Jun	30 Jun	5 Jul	30 Jun	10 Aug	Jun	19 Jul
SIAL	----	----	----	----	----	24 May	----	----	----	----	----	28 Jun	----	----	----	----	----	19 Jul
SIHY	----	25 Mar	25 Mar	Apr	----	----	Jun	25 Jun	30 Jun	Jun	8 Jun	----	5 Aug	15 Jul	5 Aug	10 Aug	Jun	9 Aug
SILI	----	----	----	----	----	----	----	----	30 May	----	----	----	----	----	5 Jul	----	----	----
SPCO	----	25 Apr	Apr	Apr	17 May	Apr	5 Jul	20 Jun	30 Jun	----	----	----	1 Aug	15 Jul	25 Jul	----	Jun	----
STCO	----	5 Mar	Mar	Mar	23 Apr	24 May	Jun	5 Jul	5 Jul	Jul	----	----	5 Aug	15 Jul	20 Jul	5 Aug	Jun	23 Sep
Sweetwater																		
ARFR	----	28 Mar	5 Apr	Apr	15 Apr	24 May	5 Sep	Aug	Aug	25 Aug	----	22 Sep	Nov	Oct	Oct	Oct	----	----
AGSM	----	28 Mar	Apr	Apr	15 Apr	Apr	12 Jul	10 Jul	5 Jul	----	----	----	15 Sep	15 Sep	30 Jul	----	----	----
ALTE	----	----	----	----	----	24 May	----	----	15 Jun	----	----	----	----	----	25 Jul	----	----	19 Jul
ARHO	----	----	----	Apr	15 Apr	24 May	----	20 Jun	20 Jun	5 Jul	Jun	Jun	----	25 Jul	----	1 Aug	19 Jul	19 Jul
$ARHO_2$	----	20 Apr	----	Apr	15 Apr	Apr	----	25 May	30 May	25 May	----	----	----	30 Jun	----	25 Jun	8 Jun	19 Jul
ARNO	----	22 May	20 May	May	15 Apr	24 May	15 Sep	20 Sep	20 Sep	15 Sep	----	22 Sep	5 Nov	25 Oct	25 Oct	Nov	----	----

TABLE V. (continued)

Exclosure	Growth Initiation						Full Bloom						Seed Dissemination					
Species	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978
Sweetwater (cont'd)																		
ARTR	----	22 May	20 May	May	15 Apr	24 May	15 Sep	15 Sep	20 Sep	19 Sep	----	22 Sep	10 Nov	30 Oct	25 Oct	Nov	----	----
ASDI	----	1 Jun	----	----	----	----	----	20 Jul	Jul	----	----	----	----	Aug	Aug	----	----	----
ASMI	----	----	----	----	15 Apr	Apr	----	----	----	----	----	----	----	----	----	----	----	19 Jul
ASPU	----	20 Mar	5 Apr	Apr	15 Apr	24 May	1 Jul	5 Jun	15 Jun	2 Jun	----	----	12 Jul	10 Jun	Jun	15 Jul	29 Jun	----
ASSP	----	25 Mar	5 Apr	Apr	15 Apr	24 May	1 Jul	19 Jun	30 Jun	15 Jun	Jun	Jun	Aug	25 Jul	25 Jul	25 Aug	19 Jul	1 Sep
CAEL	----	----	----	----	15 Apr	Apr	----	----	----	----	----	----	----	----	----	----	8 Jun	7 Aug
CAFI	----	28 Mar	Apr	Apr	15 Apr	Apr	----	30 May	15 Jun	12 Jun	12 Jun	----	20 Aug	5 Aug	5 Jul	19 Sep	8 Jun	----
CANU	----	15 May	10 May	----	----	----	20 Jun	19 Jun	Jun	----	----	----	5 Jul	5 Jul	----	----	----	----
CAS	----	----	----	----	----	Apr	----	----	----	----	----	----	----	----	----	----	----	19 Jul
CELA	----	----	----	----	----	----	----	----	----	----	----	1 Sep	----	----	----	----	----	----
CHDO	----	1 Jun	----	----	----	Apr	----	20 Jun	20 Jun	----	----	----	----	10 Jul	25 Jul	----	----	7 Aug
CHNA	----	25 Apr	30 Apr	May	15 Apr	24 May	Sep	Sep	Sep	19 Sep	Aug	19 Jul	Oct	Oct	Oct	Nov	----	----
CHVI	May	20 Apr	May	May	18 May	24 May	10 Sep	10 Aug	Aug	15 Sep	Aug	22 Sep	30 Oct	----	Oct	Nov	----	----
COPA	----	----	----	Apr	Apr	Apr	29 Jun	5 Jun	20 Jun	10 Jun	8 Jun	7 Jun	Jul	20 Jul	20 Jul	10 Aug	19 Jul	19 Jul
CRBR	----	----	----	----	15 Apr	Apr	----	----	----	----	8 Jun	7 Jun	----	----	----	----	29 Jun	19 Jul
CRFL	----	----	----	----	15 Apr	Apr	----	----	----	----	Jun	30 Jun	----	----	----	----	19 Jul	7 Aug
CRP	----	25 Mar	1 Mar	Apr	----	----	29 Jun	22 May	30 Jun	1 Jul	----	----	10 Aug	Aug	25 Jul	20 Aug	----	----
CRY	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CYMO	----	----	May	Apr	Mar	Apr	----	----	5 Jun	17 May	----	----	----	----	20 Jun	15 Jun	8 Jun	19 Jul
DEGE	----	25 Mar	5 Apr	Apr	18 May	----	20 Jun	25 Jun	15 Jun	May	8 Jun	----	12 Jul	30 Jun	15 Jul	20 Jul	29 Jun	----
ERLA	----	----	May	----	----	----	----	----	15 Jun	----	----	----	----	----	----	----	----	----
EROV	----	20 Apr	May	May	Apr	24 May	20 Jun	25 May	15 Jun	15 Jun	Jun	7 Jun	5 Jul	10 Jul	10 Jul	Aug	29 Jun	19 Jul
ERPU	----	25 Mar	5 Apr	----	----	----	29 Jun	15 Jun	Jun	----	----	----	5 Jul	5 Jul	10 Jul	----	----	----
KOCR	----	28 Mar	Apr	Apr	15 Apr	Apr	25 Jun	20 Jun	20 Jun	20 Jun	----	30 Jun	25 Aug	15 Jul	15 Jul	10 Aug	29 Jun	19 Jul
LEAL	----	----	----	----	----	----	----	1 Jun	25 Jun	----	----	30 Jun	----	29 Jul	25 Jul	----	----	19 Jul
LEPU	----	20 May	May	Apr	15 Apr	Apr	30 Jun	19 Jun	30 Jun	5 Jul	29 Jun	----	Jul	1 Aug	20 Jul	10 Aug	19 Jul	7 Aug
MAGR	----	----	----	May	May	----	----	----	Jul	20 Aug	----	----	----	----	Aug	Sep	19 Jul	7 Aug
OECA	----	----	----	----	----	----	----	----	20 Jun	----	----	----	----	----	Jul	----	----	----
OPPO	----	25 Apr	May	Apr	15 Apr	24 May	15 Jul	5 Jul	10 Jul	30 Jul	29 Jun	----	Sep	Aug	----	Sep	18 Sep	1 Sep
ORFA	----	----	----	----	----	----	----	20 Jun	Jul	----	----	----	----	15 Jul	----	----	----	----
ORHY	----	28 Mar	Apr	Mar	15 Apr	24 May	20 Jun	20 Jun	30 Jun	Jun	----	Jun	5 Sep	10 Jul	10 Jul	15 Jul	19 Jul	19 Jul
OXLA	----	20 Mar	30 Mar	----	----	----	----	10 Jun	25 Jun	----	----	----	Aug	Aug	25 Jul	----	----	----

TABLE V. (continued)

Exclosure	Growth Initiation						Full Bloom						Seed Dissemination					
Species	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978
Sweetwater (cont'd)																		
PECL	----	May	----	Apr	----	----	30 Jun	20 Jun	25 Jun	Jun	----	----	20 Jul	10 Jul	5 Aug	30 Jul	----	----
PEFR	----	----	----	----	15 Apr	Apr	----	----	----	----	Jun	Jun	----	----	----	----	29 Jun	7 Aug
PHHO	----	----	----	Apr	15 Apr	24 May	30 Jun	22 May	30 May	May	Jun	----	12 Jul	5 Jul	Jul	2 Jun	29 Jun	1 Sep
POSE	----	25 Mar	Apr	----	----	----	15 Jun	20 Jun	----	----	----	----	5 Jul	5 Jul	----	----	----	1 Sep
PSTE	----	20 May	----	May	18 May	Jun	----	----	----	Jul	----	----	----	Aug	----	Aug	----	1 Sep
SADE	----	----	----	----	----	7 Jun	----	----	----	----	----	----	----	----	----	----	----	----
SPCO	----	28 Mar	5 Apr	Apr	18 May	Apr	----	25 Jun	30 Jun	Jul	----	----	Aug	5 Jul	----	Aug	----	----
STCO	----	28 Mar	Apr	Mar	15 Apr	Apr	25 Jun	25 Jun	30 Jun	25 Jun	----	7 Aug	5 Sep	10 Jul	10 Jul	1 Aug	19 Jul	19 Jul
TECA	----	28 Mar	5 Apr	Apr	18 May	24 May	1 Aug	1 Aug	1 Aug	5 Aug	19 Jul	7 Aug	Oct	15 Oct	15 Oct	19 Sep	----	----
TOIN	----	----	May	Apr	Mar	----	----	10 Jun	15 Jun	10 Sep	----	----	----	10 Jul	Aug	Oct	----	----
VIO	----	----	----	----	Apr	24 May	----	----	----	----	8 Jun	----	----	10 Jul	Aug	Oct	29 Jun	----
VIVA	----	5 May	----	----	----	----	----	25 May	1 Jun	----	----	----	----	15 Jun	----	----	----	----
ZYVE	----	28 Mar	5 Apr	Apr	15 Apr	Apr	----	30 May	5 Jun	May	----	----	----	5 Jul	30 Jun	25 Jun	29 Jun	----
Upper Gov't Draw																		
AGSM	----	Mar	Mar	Apr	Mar	Apr	10 Jul	Jul	10 Jul	Jul	----	----	Aug	25 Aug	Aug	Aug	10 Aug	9 Aug
ALTE	----	----	----	Apr	Mar	24 May	Jun	Jun	20 Jun	10 Jun	----	----	Jun	1 Jun	Jul	25 Jul	28 Jun	9 Aug
ANDI	----	----	----	----	Apr	24 May	----	----	----	----	----	----	----	----	----	----	8 Jun	----
ARLI	----	----	May	May	Apr	24 May	----	----	30 May	5 Jun	----	----	----	----	Jun	10 Jul	8 Jun	19 Jul
ARTR	----	May	May	May	23 Apr	24 May	Aug	22 Aug	Aug	18 Sep	Sep	----	Nov	Nov	Nov	Nov	----	23 Sep
ASPU	----	----	May	Apr	23 Apr	May	----	----	May	1 Jun	18 May	----	----	----	Jun	5 Jul	28 Jun	9 Aug
BOGR	----	----	----	----	----	Apr	----	----										
BRTE	----	----	Jun	Apr	----	----	----	----	30 Jun	Jun	----	----	----	----	25 Jul	25 Jul	19 Jul	19 Jul
CAS	----	----	----	May	23 Apr	Apr	5 Jul	10 Jun	5 Jun	20 Jun	8 Jun	Jun	25 Jul	Jul	25 Jul	25 Jul	18 Jun	19 Jul
CHVI	----	May	May	May	23 Apr	Apr	15 Aug	22 Aug	Aug	20 Sep	10 Aug	Jun	----	Sep	Sep	Oct	----	19 Jul
CRAC	----	----	----	----	----	Apr	----	----	----	----	----	Jun	----	----	----	----	----	19 Jul
CRMO	----	----	----	Apr	23 Apr	----	----	10 Jun	10 Jun	10 Jun	8 Jun	----	20 Jul	15 Jun	20 Jul	5 Jul	28 Jun	----
CYMO	----	----	May	Apr	23 Apr	----	----	----	Jun	May	18 May	----	----	----	24 Jun	5 Jun	8 Jun	----
DEPI	----	----	May	May	----	24 May	----	----	15 Jun	Jun	----	----	----	----	20 Jul	5 Aug	----	----
ERI	----	----	----	----	----	----	----	----	----	----	----	----	Jul	19 Jul	----	----	----	----

TABLE V. (continued)

Exclosure	Growth Initiation						Full Bloom						Seed Dissemination					
Species	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978
Upper Gov't Draw (cont'd)																		
ERPU	----	----	Jun	May	23 Apr	24 May	----	----	25 Jun	15 Jul	Jun	19 Jul	----	----	25 Jul	5 Aug	19 Jul	9 Aug
CELA	----	----	May	----	----	----	10 Jul	----	----	----	----	----	Aug	----	----	----	----	----
KOCR	----	Mar	Mar	Apr	----	Apr	Jul	20 Jun	30 Jun	30 Jun	8 Jun	26 Jun	25 Jul	Jul	30 Jul	10 Aug	19 Jul	19 Jul
LARE	----	----	Jun	Apr	----	24 May	----	----	24 Jun	15 Jun	----	----	----	----	Jul	10 Aug	----	----
LEDE	----	----	Jun	----	----	----	----	----	Jun	----	----	----	----	----	1 Aug	----	----	----
LERE	----	----	Jun	----	23 Apr	24 May	----	----	25 Jun	----	Jun	----	----	----	Jul	----	19 Jul	----
LOOR	----	----	----	----	23 Apr	----	----	----	----	----	18 May	----	----	----	----	----	28 Jun	----
MACA	----	----	----	----	Apr	----	----	----	----	----	28 Jun	26 Jun	----	----	----	----	10 Aug	9 Aug
MAGL	----	----	May	----	----	----	----	----	30 Jun	----	----	----	----	----	25 Jul	----	----	----
OPPO	----	May	May	May	23 Apr	24 May	5 Jul	Jul	Jul	25 Jun	28 Jun	19 Jul	30 Aug	Aug	Aug	Aug	10 Aug	23 Sep
PECL	----	----	Jun	May	May	24 May	----	20 Jun	24 Jun	Jun	----	----	----	Jul	Aug	1 Jul	10 Aug	----
PHHO	----	----	Apr	Apr	23 Apr	24 May	Jun	5 Jun	1 Jun	May	18 May	Jun	Jul	Jul	Jul	1 Jul	8 Jun	19 Jul
PLPA	----	----	----	----	----	----	----	----	----	----	----	Jun	----	----	----	----	----	19 Jul
PLSP	----	----	Jun	----	----	----	----	----	Jul	----	----	----	----	----	30 Jul	----	----	----
POSE	----	Mar	Mar	Apr	Mar	Apr	----	10 Jun	30 Jun	20 Jun	8 Jun	----	Jul	Jul	Jul	10 Aug	28 Jun	19 Jul
SIHY	----	Mar	----	----	----	----	----	Jul	----	----	----	----	25 Jul	20 Aug	----	----	----	----
SPCO	----	May	May	Apr	23 Apr	24 May	30 Jun	15 Jun	Jun	Jun	----	----	Aug	20 Aug	5 Aug	15 Aug	10 Aug	1 Sep
STCO	----	----	----	----	23 Apr	Apr	----	----	----	----	----	----	----	----	----	----	19 Jul	19 Jul
TRDU	----	----	----	----	Apr	----	----	----	----	----	----	----	----	----	----	----	28 Jun	19 Jul
UMB	----	----	----	----	----	----	----	----	May	----	----	----	17 Jul	----	Jun	----	----	----
VIAM	----	----	Jun	May	Apr	Apr	----	----	25 Jun	----	----	Jun	Jul	Jul	Jul	----	28 Jun	9 Aug
VINU	----	----	May	May	23 Apr	24 May	----	----	Jun	May	May	----	----	----	Jul	Jun	28 Jun	----

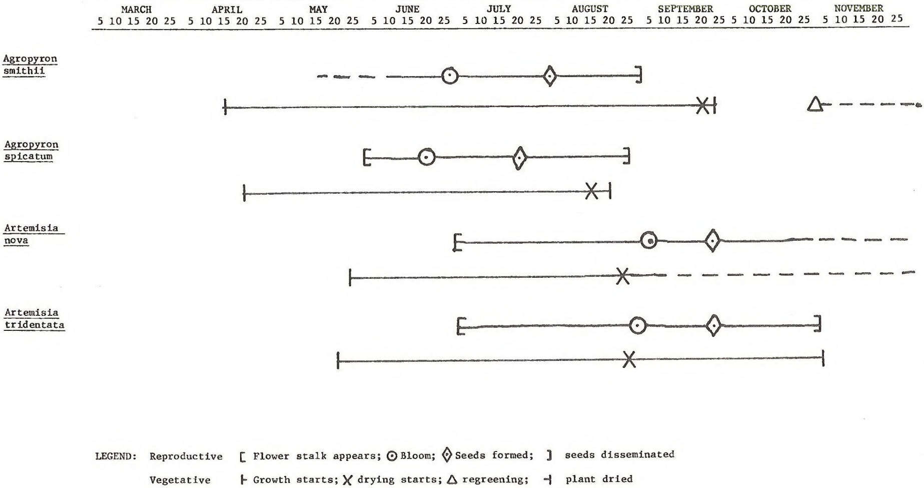
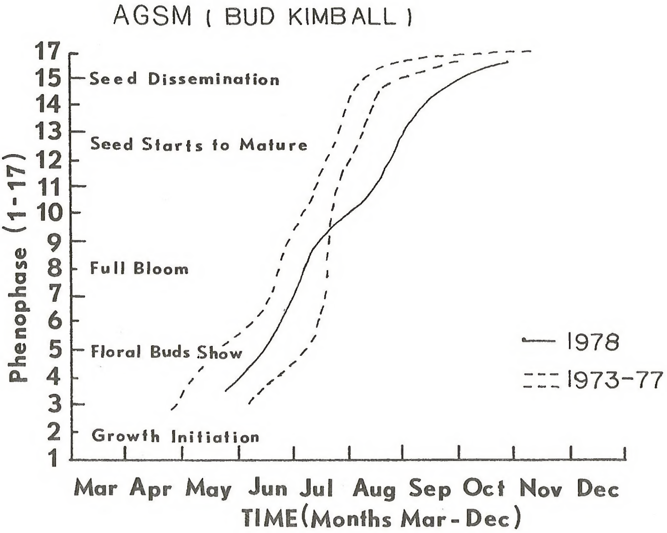


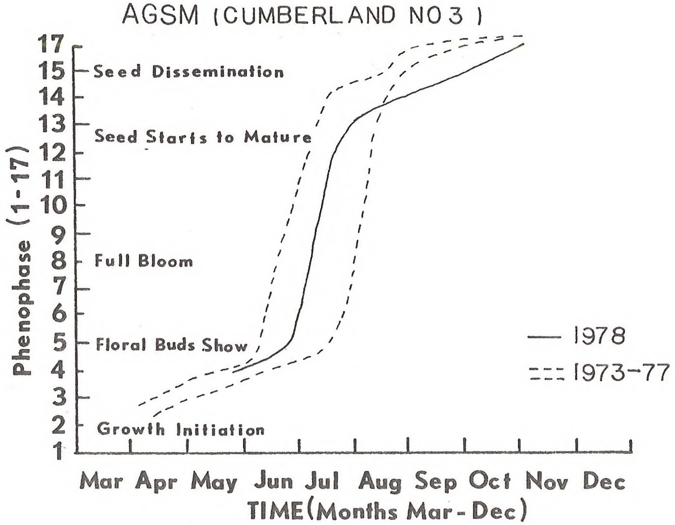
Figure 1. Phenological development averages in all study areas for four prime species. 1978

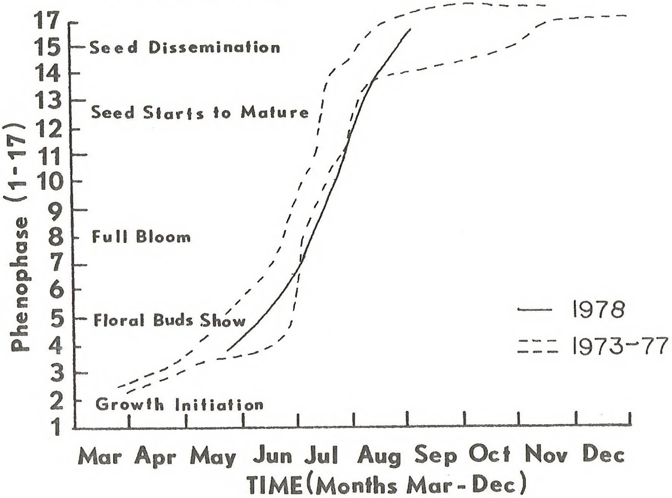
Figure 2. Phenological progression curve for each of the prime species at each exclosure. Current year compared to earliest and latest phenological development from 1973 through 1976.

Page

AGSM - Agropyron smithii 294
AGSP - Agropyron spicatum. 305
ARNO - Artemisia nova. 311
ARTR - Artemisia tridentata. 314

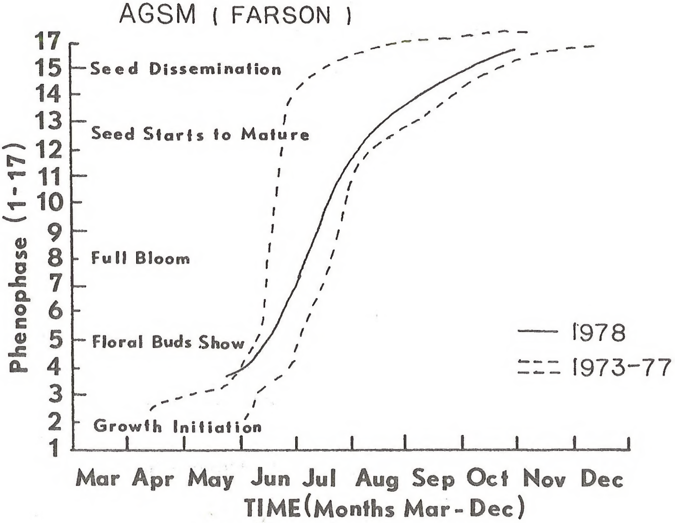

AGSM (BUD KIMBALL)
Phenophase (1-17)
17
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
Seed Dissemination
Seed Starts to Mature
Full Bloom
Floral Buds Show
Growth Initiation
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TIME (Months Mar - Dec)
1978
1973-77


AGSM (CUMBERLAND NO 3)
17
15 Seed Dissemination
14
13 Seed Starts to Mature
12
11
10
9
8 Full Bloom
7
6
5 Floral Buds Show
4
3
2 Growth Initiation
1
Phenophase (1-17)
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TIME(Months Mar-Dec)
— 1978
--- 1973-77

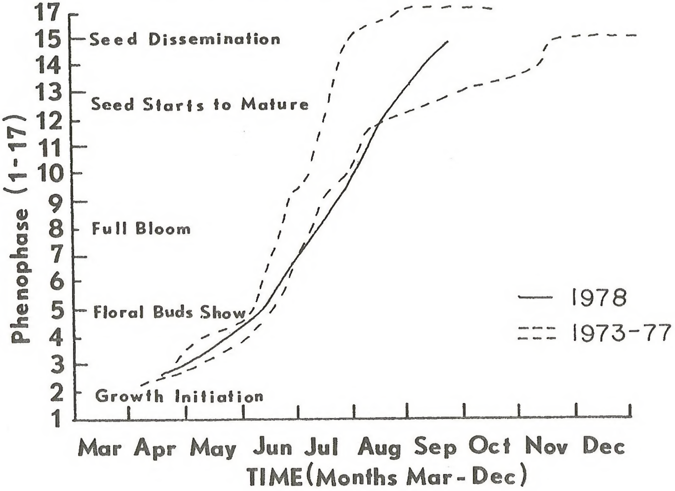


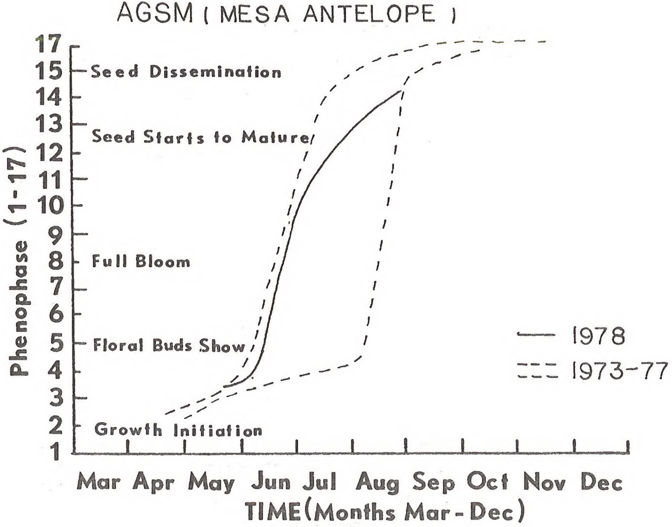
AGSM (DEMER)

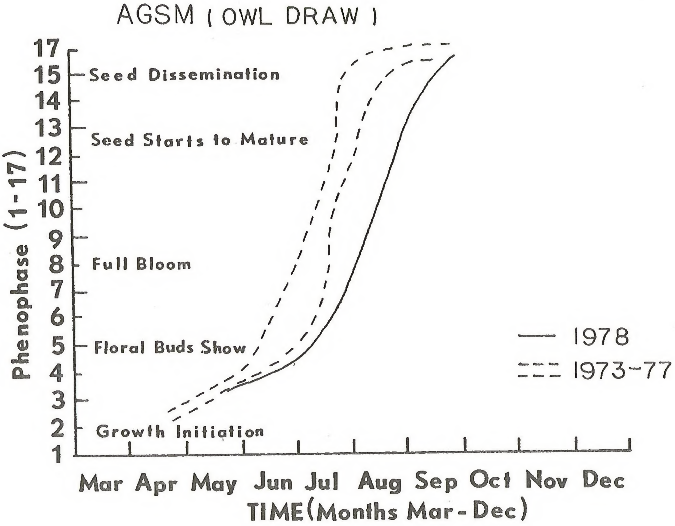
Phenophase (1-17)
17
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
Seed Dissemination
Seed Starts to Mature
Full Bloom
Floral Buds Show
Growth Initiation
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TIME(Months Mar-Dec)
1978
1973-77

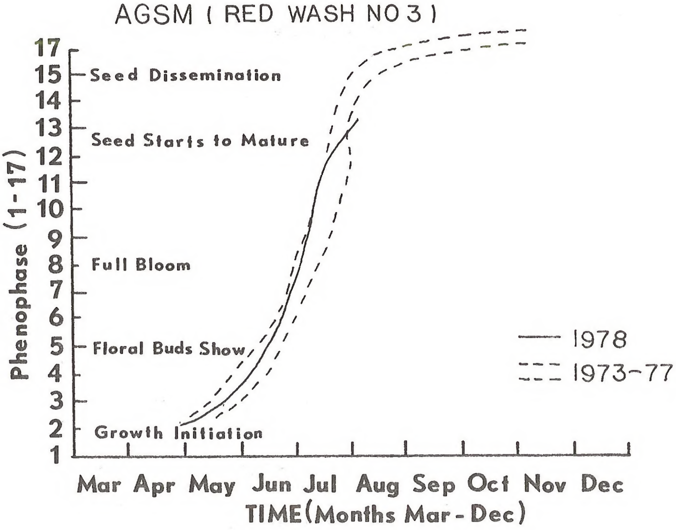

AGSM (FARSON)
Phenophase (1-17)
17
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
Seed Dissemination
Seed Starts to Mature
Full Bloom
Floral Buds Show
Growth Initiation
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TIME(Months Mar-Dec)
1978
1973-77

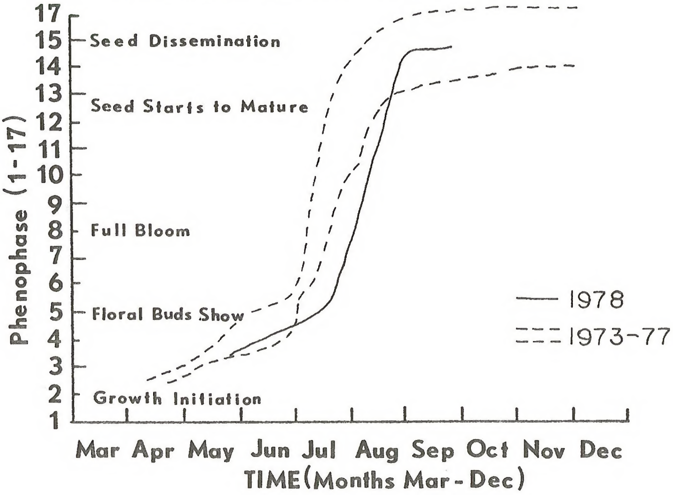
AGSM (HORSECREEK)




AGSM (MESA ANTELOPE)
Phenophase (1-17)
17
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
Seed Dissemination
Seed Starts to Mature
Full Bloom
Floral Buds Show
Growth Initiation
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TIME (Months Mar - Dec)
1978
1973-77

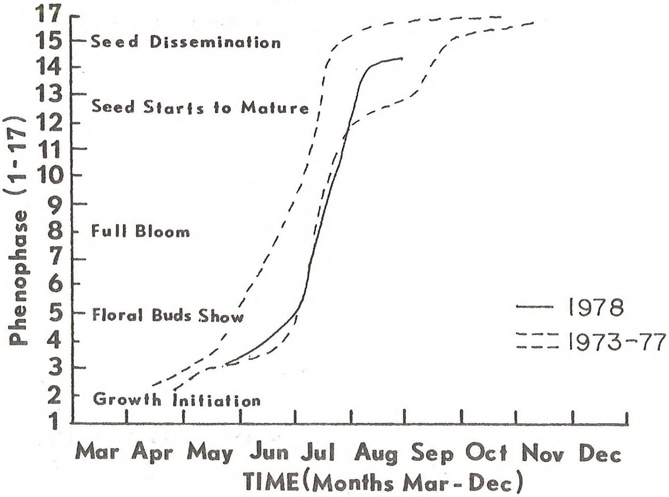

AGSM (OWL DRAW)
17
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
Phenophase (1-17)
Seed Dissemination
Seed Starts to Mature
Full Bloom
Floral Buds Show
Growth Initiation
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TIME (Months Mar-Dec)
1978
1973-77

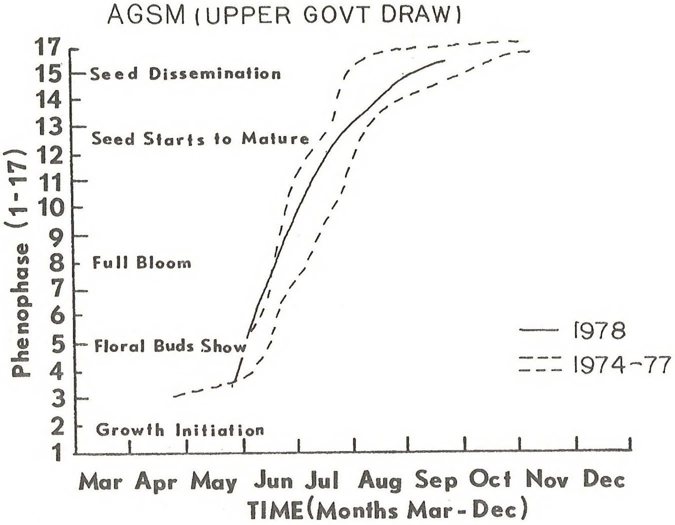

AGSM (RED WASH NO 3)
Phenophase (1-17)
17
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
Seed Dissemination
Seed Starts to Mature
Full Bloom
Floral Buds Show
Growth Initiation
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TIME(Months Mar - Dec)
1978
1973-77

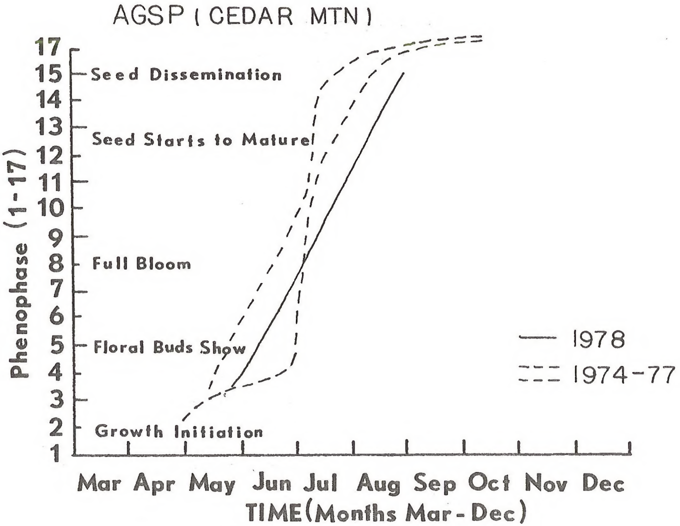


AGSM (SHOSHONI NO 7)

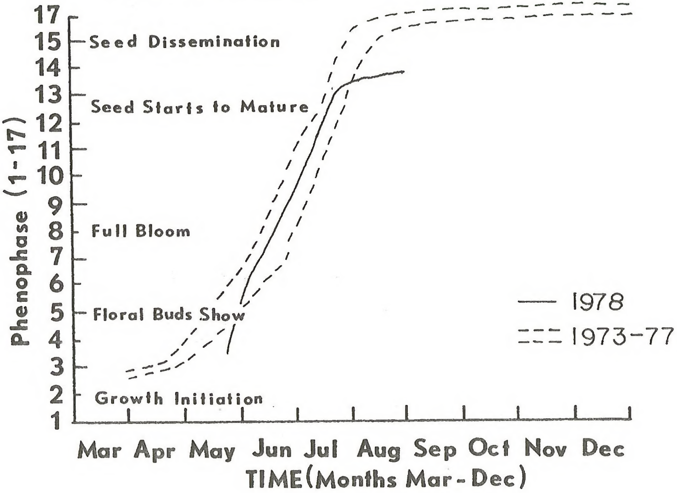
AGSM (SWEETWATER)



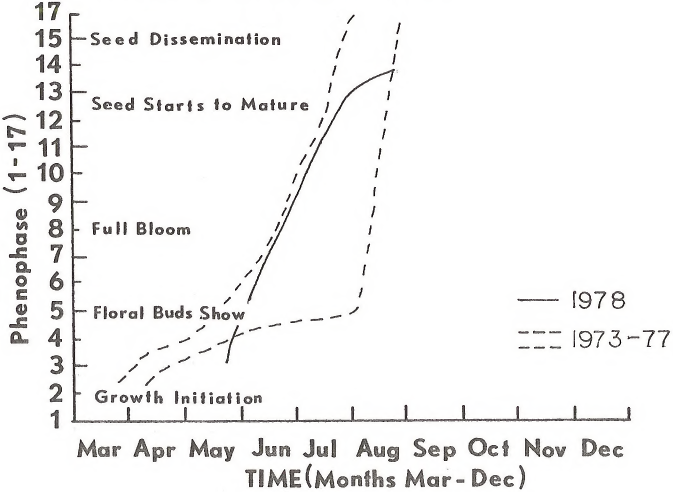

AGSM (UPPER GOVT DRAW)
Phenophase (1-17)
17
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
Seed Dissemination
Seed Starts to Mature
Full Bloom
Floral Buds Show
Growth Initiation
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TIME (Months Mar - Dec)
— 1978
- - - 1974-77

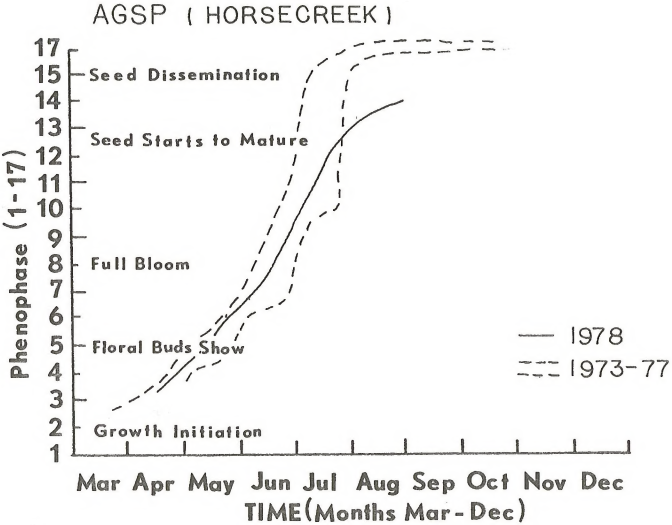

AGSP (CEDAR MTN)
17
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
Phenophase (1 - 17)
Seed Dissemination
Seed Starts to Mature
Full Bloom
Floral Buds Show
Growth Initiation
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TIME (Months Mar - Dec)
1978
1974-77

AGSP (DEMER)


Phenophase (1-17)
17
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
Seed Dissemination
Seed Starts to Mature
Full Bloom
Floral Buds Show
Growth Initiation
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TIME (Months Mar - Dec)
1978
1973-77

AGSP (CUMBERLAND NO 3)




AGSP (HORSECREEK)
Phenophase (1-17)
17
15
14
13
12
11
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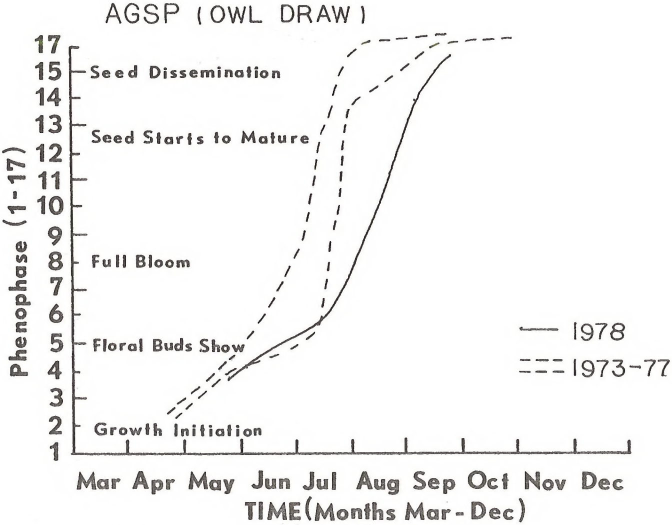
9
8
7
6
5
4
3
2
1
Seed Dissemination
Seed Starts to Mature
Full Bloom
Floral Buds Show
Growth Initiation
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TIME(Months Mar-Dec)
1978
1973-77


AGSP (OWL DRAW)
Phenophase (1-17)
17
15
14
13
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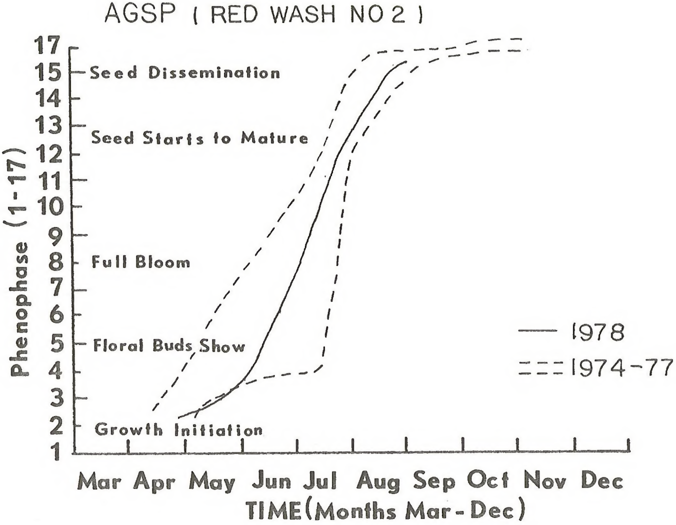
4
3
2
1
Seed Dissemination
Seed Starts to Mature
Full Bloom
Floral Buds Show
Growth Initiation
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TIME (Months Mar - Dec)
1978
1973-77


AGSP (RED WASH NO 2)
Phenophase (1-17)
17
15
14
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8
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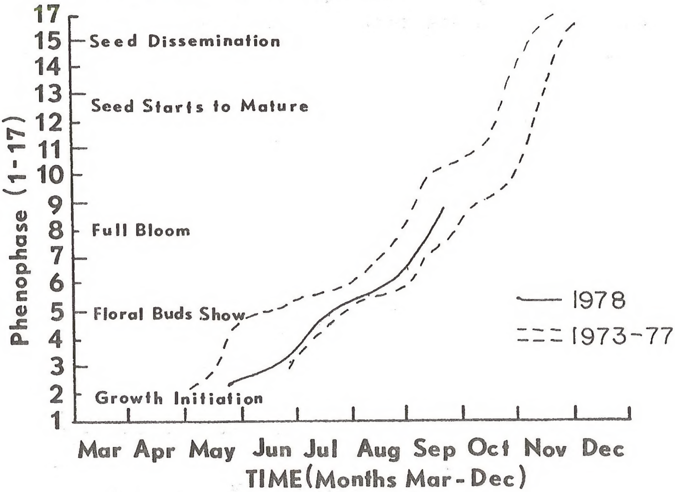
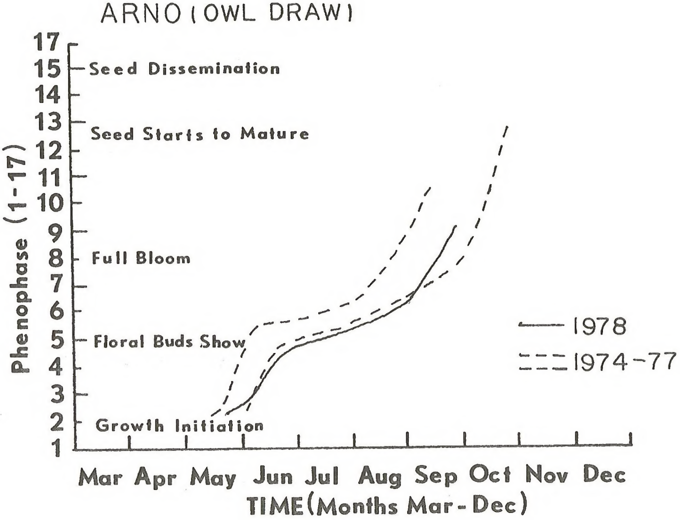
4
3
2
1
Seed Dissemination
Seed Starts to Mature
Full Bloom
Floral Buds Show
Growth Initiation
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TIME (Months Mar-Dec)
1978
1974-77

ARNO (HORSECREEK)




ARNO (OWL DRAW)
Phenophase (1-17)
17
15
14
13
12
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9
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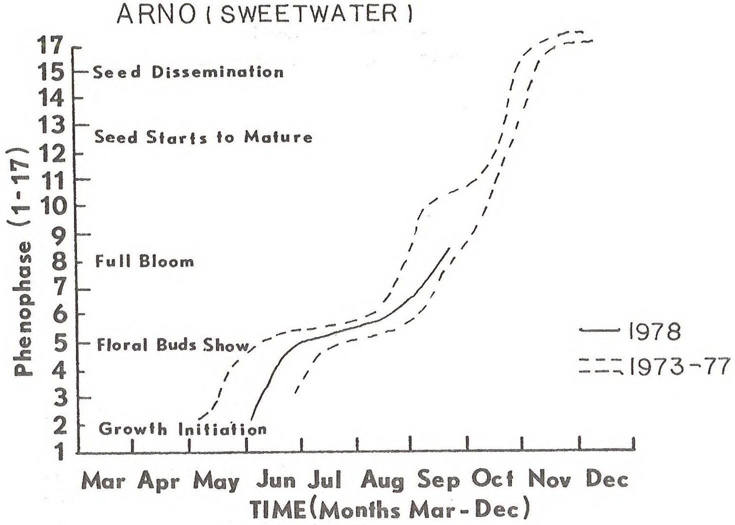
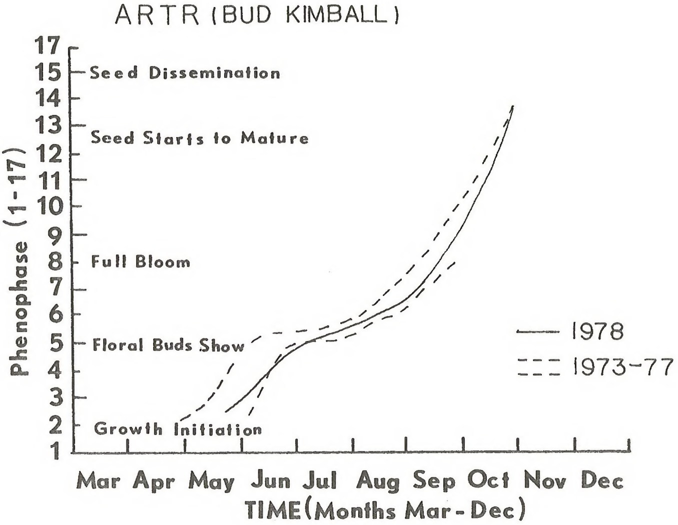
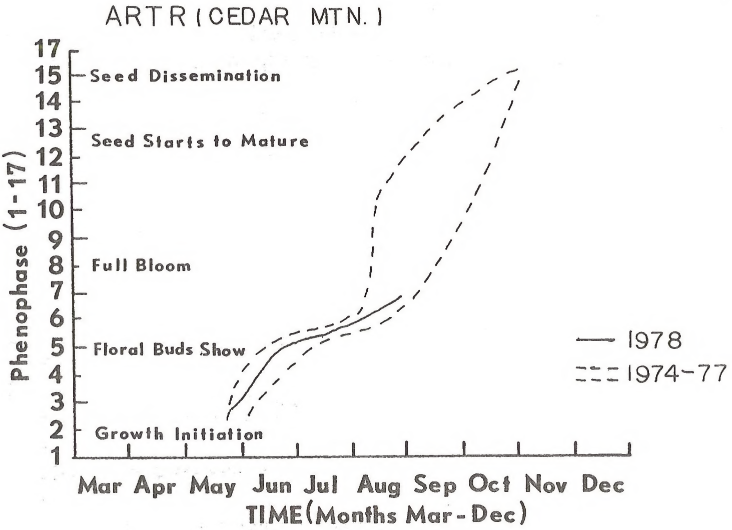
4
3
2
1
Seed Dissemination
Seed Starts to Mature
Full Bloom
Floral Buds Show
Growth Initiation
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TIME (Months Mar-Dec)
1978
1974-77


ARNO (SWEETWATER)
Phenophase (1-17)
17
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
Seed Dissemination
Seed Starts to Mature
Full Bloom
Floral Buds Show
Growth Initiation
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TIME(Months Mar-Dec)
1978
1973-77



ARTR (BUD KIMBALL)


ARTR (CEDAR MTN.)
Phenophase (1-17)
17
15
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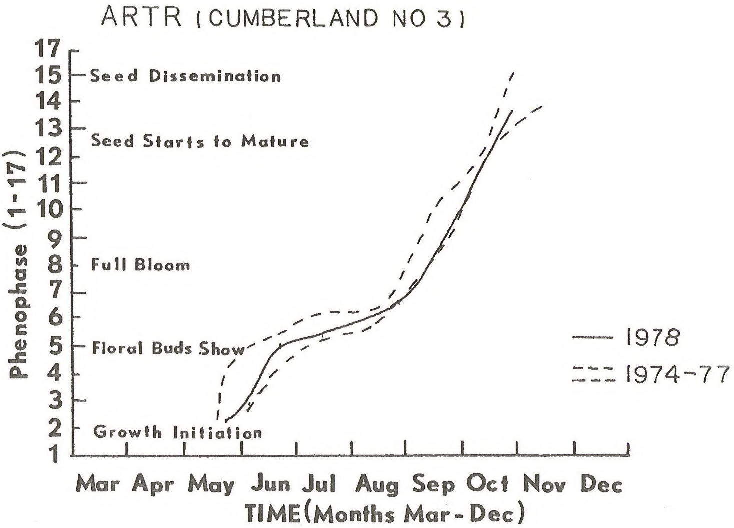
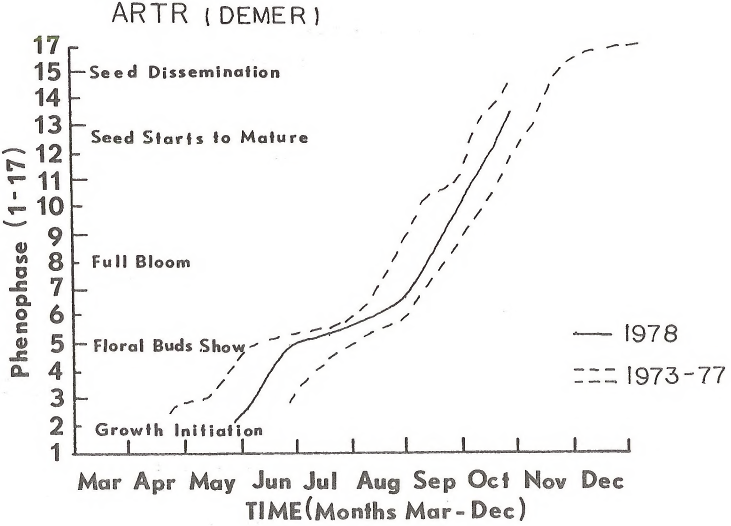
4
3
2
1
Seed Dissemination
Seed Starts to Mature
Full Bloom
Floral Buds Show
Growth Initiation
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TIME (Months Mar - Dec)
1978
1974-77



ARTR (CUMBERLAND NO 3)


ARTR (DEMER)
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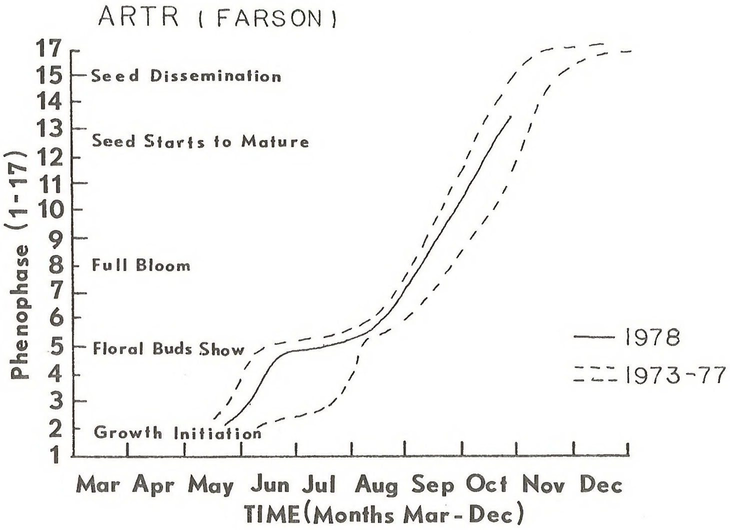
Seed Dissemination
Seed Starts to Mature
Full Bloom
Floral Buds Show
Growth Initiation
Phenophase (1-17)
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TIME (Months Mar - Dec)
1978
1973-77


ARTR (FARSON)
Phenophase (1-17)
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Seed Dissemination
Seed Starts to Mature
Full Bloom
Floral Buds Show
Growth Initiation
Mar
Apr
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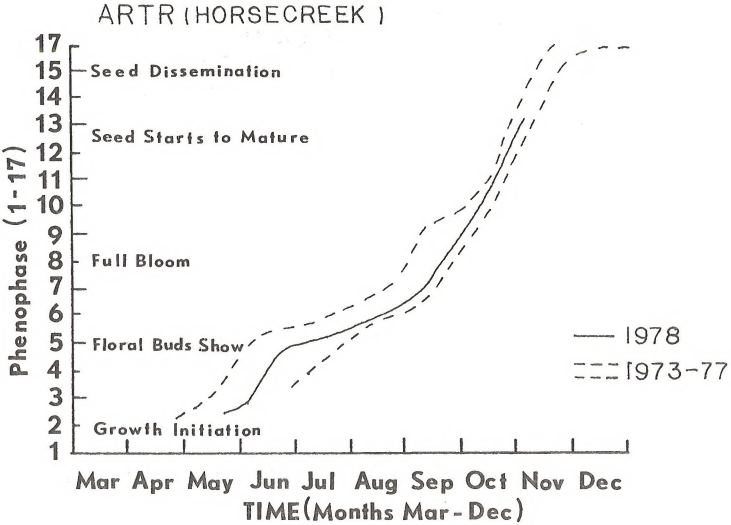
TIME(Months Mar-Dec)
1978
1973-77


ARTR (HORSECREEK)
Phenophase (1-17)
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Seed Dissemination
Seed Starts to Mature
Full Bloom
Floral Buds Show
Growth Initiation
Mar
Apr
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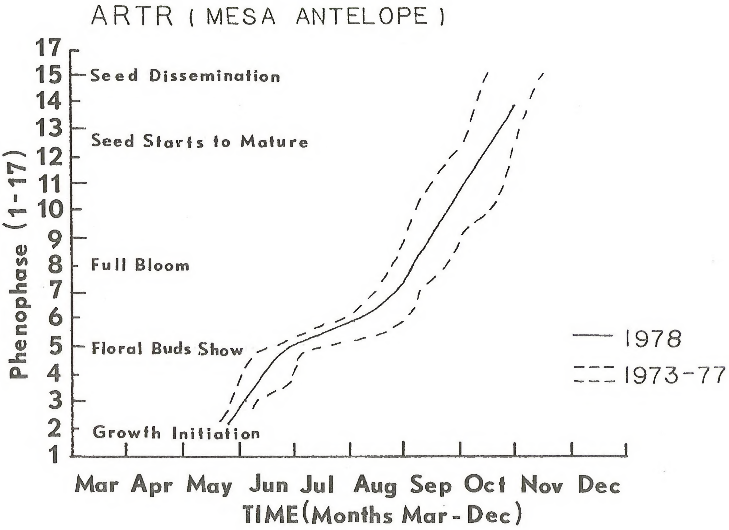
Nov
Dec
TIME (Months Mar-Dec)
1978
1973-77


ARTR (MESA ANTELOPE)
Phenophase (1-17)
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4
3
2
1
Seed Dissemination
Seed Starts to Mature
Full Bloom
Floral Buds Show
Growth Initiation
Mar
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May
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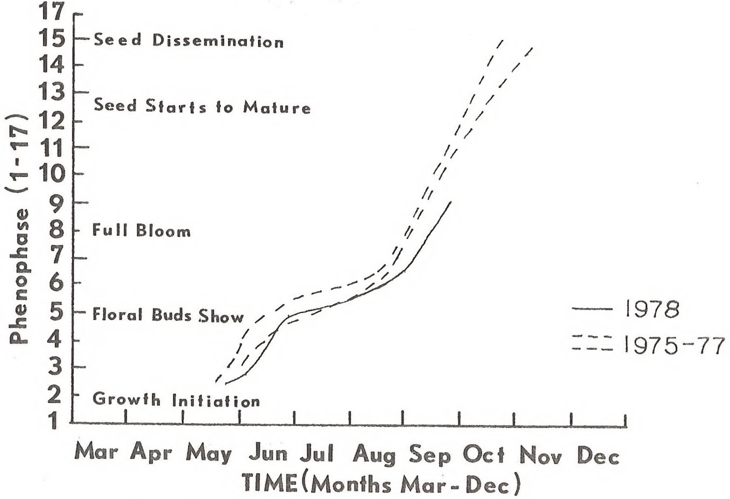
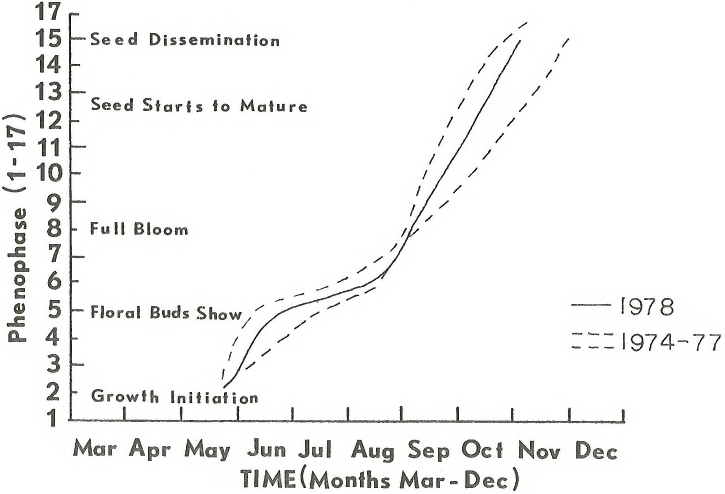
Oct
Nov
Dec
TIME (Months Mar-Dec)
1978
1973-77

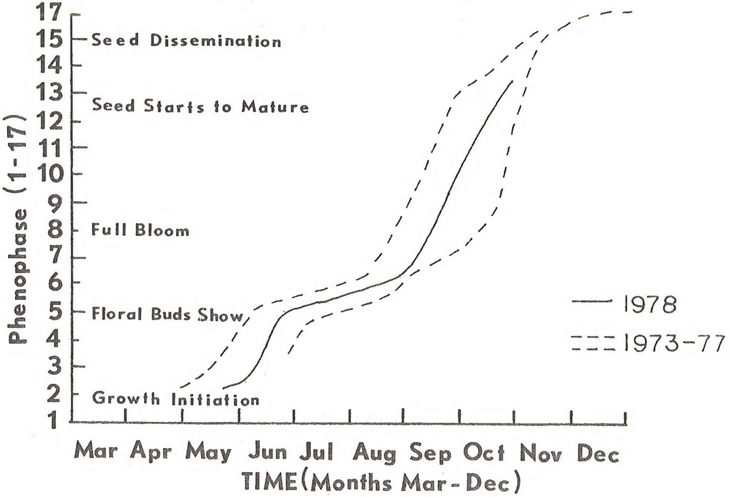
ARTR (OWL DRAW)

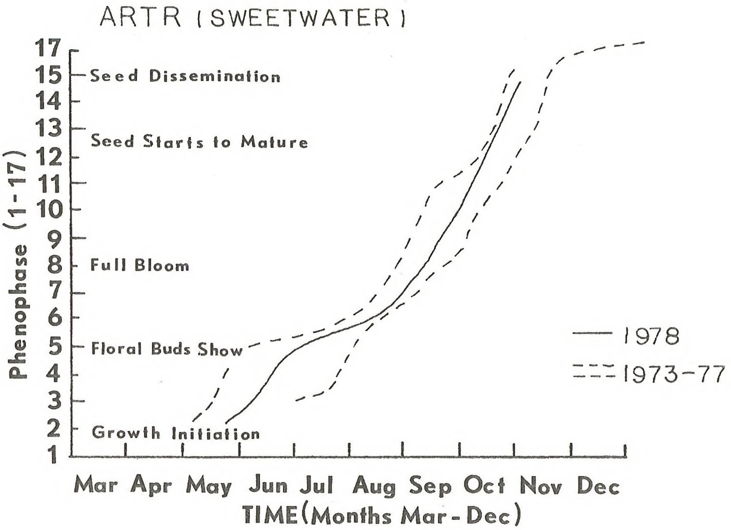




ARTR (RED WASH NO 2)

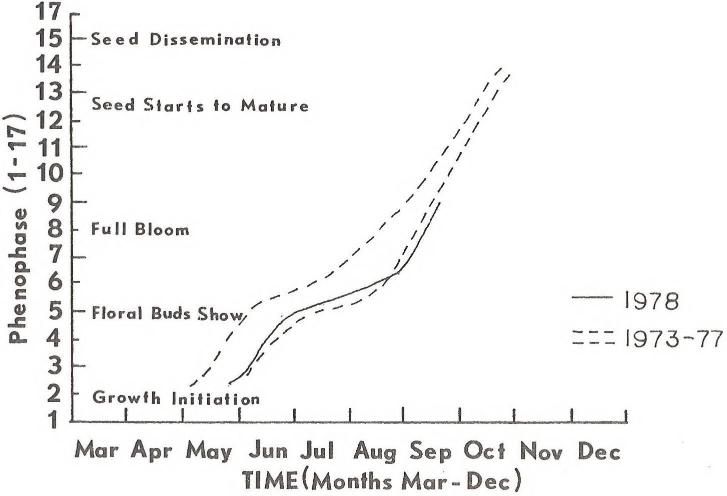
ARTR (SHOSHONI NO 7)





ARTR (SWEETWATER)

ARTR (UPPER GOVT DRAW)



SECTION II

STEP-WISE REGRESSION FOR PREDICTIVE MODELING

Introduction

1978

The phenological and environmental data were analyzed by multiple linear step-wise regression. The object was to determine the important cause-and-effect relationships and correlations between environmental factors and plant development. Two grass species, *Agropyron smithii* and *Agropyron spicatum*, and two shrub species, *Artemisia nova* and *Artemisia tridentata* were analyzed.

The step-wise model selected the independent variables for which the linear relationship with the dependent variable was significant. The significance of the multiple regression of all selected independent variables on the dependent variable was tested by analysis of variance. The significances of partial regressions of individual selected independent variables on the dependent variable was tested by a t-test. All independent variables significant at less than .80 confidence ($\alpha > .20$) were rejected from the analysis. The regression model used was

$$Y = \beta_0 = \beta_1 X_{i1} + \beta_2 X_{i2} + \ldots \beta_k X_{ik} + e_i$$

In this model Y is the dependent variable and represents either the reproductive or vegetative phenological stage of the plant. The Y-intercept or theoretical starting point for phenological development is β_0. Because β_0 is mathematically a result of the slope of all regression lines used in the model, and not directly the result of growth initiation observed in the field, it is of little or no interpretive value. The regression coefficients β_i are the slopes or trends of the regression lines for change in Y per unit change of each corresponding selected independent variable X_i. The value of each β_i multiplied by the corresponding data point X_i and that quantity added to β_0 predicts the phenological stage Y of the plant. Negative regression coefficients were calculated when phenological advancement accompanied a decrease in the value of the independent variable. Such relationships tend to slow or prolong plant development. All variables used in the model are listed in Table I.

Simple correlation coefficients for each of the four prime species (Tables IIa, b, c, d) measured the degree to which any two variables coincided. No distinction was made between independent and dependent variables. In contrast to regression coefficients, simple correlation coefficients imply no cause and effect relationship.

Annual progress reports of summarized production and precipitation data were initiated in 1962. The phenology and production studies were integrated into the early Arid Land Ecology program in 1973 and those data were presented in annual progress reports from 1973 to the present. Included in the 1976, 1977 and the present report was a new section of step-wise regression analysis for predictive modeling of phenodynamics. The citation for the cooperative research report of the 1977 data is:

> Fisser, H.G., L.W. Young, J.E. Orpet, and N.E. Hargis. 1978. Phenology and production studies on semi-arid shrub types. 1977 results. University of Wyoming Coop. Res. Report to the BLM, Sec. I, II, III, IV. Wyo. Agr. Exp. Sta. Scientific Report No. 970. 438 pp.

The data from each year will be analyzed individually until adequate time has elapsed for significant interpretation probability with combined multiple year analysis.

TABLE I. Independent and dependent variables used in step-wise multiple regression analysis.

Variable No.	
1	Soil temperature at 38 cm depth on pheno. sampling date (°C)
2	Soil moisture % at 0-15 cm depth on pheno. sampling date
3	Soil moisture % at 15-30 cm depth on pheno. sampling date
4	Soil moisture % at 46-61 cm depth on pheno. sampling date
5	Soil moisture % at 0-15 cm depth one month previous
6	Soil moisture % at 15-30 cm depth one month previous
7	Soil moisture % at 46-61 cm depth one month previous
8	Yearly precipitation total accumulation (mm)
9	Oct. 15 - April 15 precipitation accumulation (mm)
10	April 15 - July 1 precipitation accumulation (mm)
11	July 1 - Sept. 1 precipitation accumulation (mm)
12	Sept. 1 - Oct. 15 precipitation accumulation (mm)
13	Total forage production (kg./Ha./yr.)
14	Species forage production (kg./Ha/yr.)
15	Air temperature on pheno. sampling date (°C)
16	Maximum air temperature since last sampling date (°C)
17	Minimum air temperature since last sampling date (°C)
18	Reproductive phenophase value
19	Vegetative phenophase value

Table IIa. Simple correlation matrix of all variables used in the study of Agropyron smithii.

VARIABLE NUMBER	1	2	3	4	5	6	7	8	9	10
1	1.0000	-.5702	-.5031	-.5592	-.3573	-.2158	-.2341	.1717	-.2030	.3056
2		1.0000	.8466	.7550	.4001	.3167	.2451	.3021	.4403	.0625
3			1.0000	.7450	.4709	.3827	.2670	.3155	.4925	.0467
4				1.0000	.4378	.3452	.4183	.3169	.4568	.0681
5					1.0000	.8396	.7423	.2666	.4497	.0242
6						1.0000	.7454	.2769	.4537	.0322
7							1.0000	.3237	.4565	.0742
8								1.0000	.5772	.8349
9									1.0000	.0583
10										1.0000

VARIABLE NUMBER	11	12	13	14	15	16	17	18	19
1	.3280	.0681	.0861	.0041	.4920	.7639	.4607	-.1064	.7463
2	.1490	.4391	.1551	.3967	-.5198	-.4707	-.4140	-.0841	-.5859
3	.1387	.4689	.1656	.4262	-.4910	-.4736	-.2920	-.0552	-.5642
4	.2340	.4260	.3758	.3900	-.5086	-.6058	-.3675	-.1339	-.6297
5	.0793	.4032	.0941	.3607	-.2057	-.3785	.1241	.0232	-.3489
6	.0900	.4160	.0971	.3721	-.1607	-.2816	.2834	.0268	-.1939
7	.2382	.4386	.3624	.4024	-.1556	-.2648	.1837	-.0548	-.2275
8	.8497	.8177	.4149	.4311	.0732	.2538	.1784	-.1829	-.0038
9	.2331	.7794	.4685	.6658	-.1823	-.2491	.2541	.3632	-.0157
10	.8057	.4098	.0847	-.0402	.2184	.4497	.0800	-.4143	-.0016
11	1.0000	.7138	.6197	.4642	.1138	.3668	-.0018	-.4357	.0182
12		1.0000	.6601	.8663	-.0747	.0703	.1712	-.0067	.0058
13			1.0000	.7511	-.1138	-.0667	-.0836	-.1146	.0244
14				1.0000	-.1655	-.0724	.0760	.0752	.0174
15					1.0000	.5057	.5100	-.0701	.4109
16						1.0000	.3274	.0234	.5978
17							1.0000	.1761	.5624
18								1.0000	.2249
19									1.0000

Table IIb. Simple correlation matrix of all variables used in the study of *Agropyron spicatum*.

VARIABLE NUMBER	1	2	3	4	5	6	7	8	9	10
1	1.0000	-.5831	-.3467	-.8356	-.7088	-.4857	-.3992	-.0640	.0640	-.0641
2		1.0000	.7440	.5584	.3736	.0009	-.1472	.2047	-.2048	.2047
3			1.0000	.5387	.2613	-.0298	-.0076	-.1832	.1831	-.1831
4				1.0000	.6287	.4187	.3913	-.2970	.2970	-.2970
5					1.0000	.7495	.6362	.2118	-.2118	.2118
6						1.0000	.8568	-.0992	.0991	-.0992
7							1.0000	-.3067	.3067	-.3067
8								1.0000	-1.0000	1.0001
9									1.0000	-1.0000
10										1.0000

VARIABLE NUMBER	11	12	13	14	15	16	17	18	19
1	.0641	.0641	.0641	.0641	.3627	.7902	.7863	.8348	.8635
2	-.2048	-.2048	-.2048	-.2047	-.4372	-.7068	-.6052	-.7263	-.5100
3	.1831	.1831	.1831	.1831	-.4862	-.7272	-.4400	-.3953	-.2005
4	.2970	.2970	.2970	.2970	-.4202	-.8818	-.6247	-.7233	-.7834
5	-.2118	-.2118	-.2118	-.2118	-.3940	-.5702	-.5004	-.5889	-.7156
6	.0992	.0992	.0992	.0992	-.2056	-.3523	-.2539	-.3205	-.4050
7	.3067	.3067	.3068	.3067	-.3955	-.3575	-.2246	-.0981	-.3189
8	-1.0002	-1.0001	-1.0004	-1.0001	.1562	.2652	-.1694	-.2054	-.1888
9	1.0000	1.0000	1.0000	1.0000	-.1561	-.2650	.1694	.2054	.1886
10	-1.0000	-1.0000	-1.0000	-1.0000	.1561	.2651	-.1694	-.2055	-.1886
11	1.0000	1.0000	1.0000	1.0000	-.1561	-.2651	.1694	.2055	.1886
12		1.0000	1.0000	1.0000	-.1561	-.2651	.1694	.2055	.1886
13			1.0000	1.0000	-.1561	-.2650	.1694	.2055	.1884
14				1.0000	-.1561	-.2651	.1694	.2055	.1886
15					1.0000	.4555	.4860	.3537	.4159
16						1.0000	.5737	.6371	.6000
17							1.0000	.8031	.7835
18								1.0000	.8691
19									1.0000

Table IIc. Simple correlation matrix of all variables used in the study of Artemisia nova.

VARIABLE NUMBER	1	2	3	4	5	6	7	8	9	10
1	1.0000	-.2709	-.1817	-.5087	-.4252	-.3095	-.2467	.1865	.1864	.1865
2		1.0000	.8012	.5939	.5913	.2955	-.0060	.3610	.3611	.3611
3			1.0000	.5941	.6573	.3772	.1388	.5097	.5097	.5097
4				1.0000	.7994	.4619	.3535	.1003	.1003	.1003
5					1.0000	.7773	.6036	.3645	.3645	.3645
6						1.0000	.6624	.5214	.5214	.5214
7							1.0000	.1548	.1548	.1548
8								1.0000	1.0000	.9959
9									1.0000	1.0000
10										1.0000

VARIABLE NUMBER	11	12	13	14	15	16	17	18	19
1	.1864	.1864	-.1860	-.1860	.3164	.6357	.5534	.7307	.7440
2	.3610	.3611	-.3609	-.3615	-.4177	-.6683	-.0562	-.5106	-.4057
3	.5097	.5097	-.5095	-.5104	-.3582	-.4578	.1283	-.4184	-.3649
4	.1003	.1003	-.1002	-.1003	-.4592	-.7314	-.0931	-.6842	-.6088
5	.3645	.3645	-.3643	-.3649	-.5184	-.5427	.0251	-.6139	-.6464
6	.5214	.5214	-.5212	-.5221	-.2562	-.2140	.2775	-.3178	-.3677
7	.1548	.1548	-.1546	-.1548	-.2118	-.0244	.1345	-.2672	-.3929
8	.9999	1.0000	-.9999	-1.0018	-.0179	.1475	.6538	.1365	.1282
9	1.0000	1.0000	-.9994	-1.0019	-.0180	.1476	.6538	.1365	.1282
10	1.0000	1.0000	-.9992	-1.0025	-.0179	.1476	.6538	.1365	.1281
11	1.0000	1.0000	-.9994	-1.0020	-.0180	.1476	.6538	.1365	.1281
12		1.0000	-.9995	-1.0021	-.0180	.1476	.6538	.1365	.1282
13			1.0000	1.0054	.0183	-.1469	-.6534	-.1363	-.1281
14				1.0000	.0186	-.1463	-.6549	-.1366	-.1279
15					1.0000	.5018	.2509	.2165	.3899
16						1.0000	.4621	.8063	.6613
17							1.0000	.4901	.4954
18								1.0000	.8606
19									1.0000

Table IId. Simple correlation matrix of all variables used in the study of Artemisia tridentata.

VARIABLE NUMBER	1	2	3	4	5	6	7	8	9	10
1	1.0000	-.6213	-.5923	-.6238	-.3248	-.2556	-.2633	.1568	-.2602	.3265
2		1.0000	.8470	.8455	.3921	.3018	.3392	.2626	.4067	.0394
3			1.0000	.8465	.4805	.3845	.3760	.2797	.4621	.0296
4				1.0000	.4768	.4086	.4899	.3944	.5534	.1038
5					1.0000	.8647	.8266	.2610	.4619	.0068
6						1.0000	.8595	.2556	.4488	.0117
7							1.0000	.4156	.5709	.1121
8								1.0000	.5449	.8431
9									1.0000	.0337
10										1.0000

VARIABLE NUMBER	11	12	13	14	15	16	17	18	19
1	.0020	-.0227	.0016	.3246	.5196	.7792	.4357	.6741	.7062
2	.3436	.3841	.1758	-.1384	-.5080	-.4716	-.4611	-.5565	-.5951
3	.3554	.4048	.1687	-.1555	-.4749	-.4906	-.3506	-.5573	-.6340
4	.4542	.4972	.3846	-.1578	-.4940	-.5630	-.4173	-.6820	-.6561
5	.3542	.4037	.1560	-.1743	-.1932	-.3678	.1527	-.4749	-.3977
6	.3326	.3829	.1359	-.1588	-.1506	-.3052	.2833	-.4288	-.3844
7	.4932	.5379	.3913	-.1655	-.1790	-.3218	.2406	-.5190	-.3646
8	.5247	.5972	.4453	.4929	.1098	.2724	.1543	-.1456	.0003
9	.5842	.6801	.4983	-.3226	-.1538	-.2541	.2273	-.2450	-.0741
10	.1251	.1686	.1093	.8626	.2360	.4637	.0766	-.0214	.0571
11	1.0000	.9891	.8377	-.3822	-.0946	.0124	-.0075	-.1537	-.0835
12		1.0000	.7993	-.3422	-.0927	.0048	.0457	-.1684	-.0824
13			1.0000	-.3580	-.1145	-.0862	-.1224	-.2108	-.0770
14				1.0000	.2788	.4595	.0687	.0827	.0977
15					1.0000	.5051	.5363	.3672	.4724
16						1.0000	.3269	.6937	.6783
17							1.0000	.3973	.4185
18								1.0000	.8469
19									1.0000

Analyses for Agropyron smithii

Reproductive Phenology. Eight independent environmental variables were significant in the regression analysis of reproductive phenology of Agropyron smithii (Table III). The estimated multiple linear regression equation was:

$$Y_{18} = -6.14 - .19X_1 - .18X_2 + .02X_9 - .002X_{10} - .07X_{11} - .05X_{15} + .42X_{16} - .06X_{17}$$

where Y_{18} = reproductive phenophase value.

Significances of the partial regression coefficients are given in Table III. The multiple regression was found highly significant by analysis of variance ($P < .001$). The eight independent variables selected accounted for 65.34% of the variablility in reproductive phenophase value ($R^2 = .6534$).

Two factors promoted or increased rate of phenological development: October 15 - April 15 precipitation accumulation (X_9) and maximum air temperature since the previous sampling date (X_{16}). Six factors slowed or prolonged phenological advancement: soil temperature at 38cm depth (X_1), per cent soil moisture at 0-15cm depth (X_2), April 15-July 1 precipitation accumulation (X_{10}), July 1-September 1 precipitation accumulation (X_{11}), air temperature on the sampling date (X_{15}), and minimum air temperature since the previous sampling date (X_{17}).

Interpretation. By interpretive extrapolation of plant responses to environmental influences it is hypothesized the increased rate of phenological development was reflected by the general minimal amounts of winter precipitation (October 15-April 15) and by the common occurrance of high temperature days throughout the growing season. Counteracting those effects and responses were those of environmental conditions which tended to reduce the rate of

TABLE III. Descriptions and significances of independent variables used in the analysis of reproductive phenology of Agropyron smithii.

Variable	Description	Significance (t - ratio)
1	Soil temperature 38cm depth (° C)	-2.00^3
2	Soil moisture % 0-15cm depth	-2.91^4
9	October 15-April 15 precipitation accumulation (mm)	8.75^5
10	April 15-July 1 precipitation accumulation (mm)	-1.03^1
11	July 1-Spetember 1 precipitation accumulation (mm)	-5.22^5
15	Air temperature (° C)	-1.14^2
16	Maximum air temperature since previous sampling date (° C)	6.30^5
17	Minimum air temperature since previous sampling date (° C)	-2.06^3

[1] Significant at .80 level

[2] Significant at .85 level

[3] Significant at .975 level

[4] Significant at .995 level

[5] Significant at .9995 level

reproductive development; in effect tending to result in positive biological response and productivity because of greater time allowance for phenological and physiological progression to full plant maturation. The year of 1978 was noted because of much greater than normal spring precipitation, especially in the Big Horn Basin.

Factors generally concomitant with increased precipitation are lower soil temperature, increased soil moisture content, as well as minimal air temperature lower than usual (early morning following rainstorms), brief occurrances of high afternoon temperature following precipitation events, but in general a decreased average temperature. These conditions were obviously extant during the 1978 growing season and are expressed in the multiple linear regression equation for Agropyron smithii reproductive phenology. Variable 9, winter precipitation, tended to be less than usual. X_{16}, maximum air temperature, frequently was high for short time periods following spring and summer rainfall events. These short term high temperature periods however, did not result in overall increased long term average temperature, which would have, in contrast to actual results, induced more rapid plant progression rate toward maturity.

Contrasted to the above, environmental conditions, which would commonly result in "good growing conditions" and by general extrapolation slow growing rates, were expressed during 1978 by negative regression coefficients for the following factors: (1) greater than normal spring and summer precipitation (X_{10}, X_{11}), (2) warmer than average temperature during winter but reduced average temperature during spring and summer (X_{15}), (3) increased winter and decreased summer soil temperature (X_1), (4) increased surface soil moisture especially during spring and summer (X_2), and (5) the common occurrance of lower than usual minimum air temperatures (X_{17}) because of increased precipitation and humidity conditions.

Comprehensive interpretation of relationships of biological elements with causal environmental factors requires application of knowledge and ability by the researcher. Because of the multiplicity of interactions of physical environmental influences with biological systems, quantitative results of tests such as the step-wise multiple regression in many instances do not actually represent real world relationships. In the instance of the analysis of Agropyron smithii reproductive phenology the regression equation very logically could be explained in terms of plant response to known environmental conditions during the past year. Given adequate locations of data accumulation and several years of study definitive relationships can be expressed.

Vegetative Phenology. Nine independent variables were significant in the regression analysis of the vegetative phenology of Agropyron smithii (Table IV). The estimated multiple linear regression equation was:

$$Y_{19} = 3.98 + .11X_1 - .03X_3 - .03X_4 - .02X_5 - .0006X_8 + .003X_9 - .01X_{15} + .02X_{16} + .01X_{17}$$

where Y_{19} = vegetative phenophase value.

Significances of the partial regression coefficients are given in Table IV. The multiple regression was found highly significant by analysis of variance ($P < .001$). The nine independent variables selected accounted for 76.78% of the variability in vegetative phenophase value (R^2=.7678).

Four factors promoted phenological development: soil temperature (X_1), October 15-April 15 precipitation accumulation (X_9), maximum air temperature since the previous sampling date (X_{16}), and minimum air temperature since the previous sampling date (X_{17}). Apparently temperature extremes stimulated rapid development. Five factors slowed or prolonged phenological development:

TABLE IV. Descriptions and significances of independent variables used in the analysis of vegetative phenology of *Agropyron smithii*.

Variable	Description	Significance (t - ratio)
1	Soil temperature 38cm depth (°C)	5.91[5]
3	Soil moisture % 15-30cm depth	-2.34[3]
4	Soil moisture % 46-61cm depth	-1.89[2]
5	Soil moisture % 0-15cm depth on previous sampling date	-1.77[2]
8	Yearly precipitation total accumulation (mm)	-2.89[4]
9	October 15-April 15 precipitation accumulation (mm)	5.24[5]
15	Air temperature (°C)	-1.51[1]
16	Maximum air temperature since previous sampling date (°C)	1.31[1]
17	Minimum air temperature since previous sampling date (°C)	2.05[3]

[1] Significant at .90 level

[2] Significant at .95 level

[3] Significant at .975 level

[4] Significant at .995 level

[5] Significant at .9995 level

percent soil moisture at 15-30cm depth (X_3), percent soil moisture at 46-61cm depth (X_4), percent soil moisture at 0-15cm depth on the previous sampling date (X_5), yearly precipitation total accumulation (X_8), and air temperature (X_{15}).

Analyses for Agropyron spicatum

Reproductive Phenology. Four independent environmental variables were significant in the regression analysis of the reproductive phenology of Agropyron spicatum (Table V). The estimated multiple linear regression equation was:

$$Y_{18} = 34.34 + .98X_1 - .83X_2 - .38X_4 - .81X_{16}$$

where Y_{18} = reproductive phenophase value.

Significances of the partial regression coefficients are given in Table V. The multiple regression was found highly significant by analysis of variance ($P < .001$). The four independent variables selected accounted for 86.49% of the variability in reproductive phenophase value ($R^2 = .8649$).

Soil temperature at 38cm depth (X_1) promoted phenological development. Three factors slowed or prolonged phenological development: percent soil moisture at 0-15cm depth (X_2), percent soil moisture at 46-61cm depth (X_4), and maximum air temperature since the previous sampling date (X_{16}).

Vegetative Phenology. Nine independent environmental variables were significant in the regression analysis of vegetative phenology of Agropyron spicatum (Table VI). The estimated multiple linear regression equation was:

$$Y_{19} = 7.22 - .03X_1 - .02X_2 + .06X_3 - .06X_4 - .04X_5 + .02X_6 - .0008X_8 + .006X_{15} + .03X_{17}$$

where Y_{19} = vegetative phenophase value.

Significances of the partial regression coefficients are given in Table VI. The multiple regression was found highly significant by analysis of variance ($P < .001$). The nine independent variables selected accounted for

TABLE V. Descriptions and significances of independent variables used in the analysis of reproductive phenology of Agropyron spicatum.

Variable	Description	Significance (t - ratio)
1	Soil temperature 38cm depth (°C)	4.51^2
2	Soil moisture % 0-15cm depth	-5.07^2
4	Soil moisture % 46-61cm depth	-2.45^1
16	Maximum air temperature since previous sampling date (°C)	-3.63^2

[1] Significant at .99 level

[2] Significant at .9995 level

TABLE VI. Descriptions and significances of independent variables used in the analysis of vegetative phenology of *Agropyron spicatum*.

Variable	Description	Significance (t - ratio)
1	Soil temperature 38cm depth (°C)	-1.26[1]
2	Soil moisture % 0-15cm depth	-1.29[1]
3	Soil moisture % 15-30cm depth	5.56[4]
4	Soil moisture % 46-61cm depth	-5.48[4]
5	Soil moisture % 0-15cm depth on previous sampling date	-1.77[3]
6	Soil mousture % 15-30cm depth on previous sampling date	1.64[2]
8	Yearly precipitation total accumulation (mm)	-1.75[3]
15	Air temperature (°C)	1.64[2]
17	Minimum air temperature since previous sampling date (°C)	4.06[4]

[1] Significant at .85 level

[2] Significant at .90 level

[3] Significant at .95 level

[4] Significant at .9995 level

96.07% of the variability in vegetative phenophase value ($R^2 = .9607$).

Four factors promoted phenological development: percent soil moisture at 15-30cm depth (X_3), percent soil moisture at 15-30cm depth on the previous sampling date (X_6), air temperature on the sampling date (X_{15}), and minimum air temperature since the previous sampling date (X_{17}). Five factors slowed or prolonged phenological development: soil temperature at 38cm depth (X_1), percent soil moisture at 0-15cm depth (X_2), percent soil moisture at 46-61cm depth (X_4), percent soil moisture at 0-15cm depth on the previous sampling date (X_5), and yearly precipitation total accumulation (X_8).

Analyses for Artemisia nova

Reproductive Phenology. Seven independent environmental variables were significant in the regression analysis of the reproductive phenology of *Artemisia nova* (Table VII). The estimated multiple linear regression equation was:

$$Y_{18} = 0.13 + .15X_1 - .68X_5 + .20X_6 - .07X_7 - .21X_{15} + .39X_{16} + .06X_{17}$$

where Y_{18} = reproductive phenophase value.

Significances of the partial regression coefficients are given in Table VII. The multiple regression was found highly significant by analysis of variance ($P < .001$). The seven independent variables selected accounted for 89.73% of the variability in reproductive phenophase value ($R^2 = .8973$).

Four factors promoted phenological development: soil temperature at 38cm depth(X_1), percent soil moisture at 15-30cm depth on the previous sampling date (X_6), maximum air temperature since the previous sampling date (X_{16}), and minimum air temperature since the previous sampling date (X_{17}). Three factors slowed or prolonged phenological development: percent soil moisture at 0-15cm depth on the previous sampling date (X_5), percent soil moisture at 46-61cm depth on the previous sampling date (X_7), and air temperature on the sampling date (X_{15}).

Vegetative Phenology. Six independent environmental variables were significant in the regression analysis of the vegetative phenology of *Artemisia nova* (Table VIII). The estimated multiple linear regression equation was:

TABLE VII. Descriptions and significances of independent variables used in the analysis of reproductive phenology of *Artemisia nova*.

Variable	Description	Significance (t - ratio)
1	Soil temperature 38cm depth (°C)	2.32[3]
5	Soil Moisture % 0-15cm depth on previous sampling date	-4.15[5]
6	Soil moisture % 15-30cm depth on previous sampling date	1.75[2]
7	Soil moisture % 46-61cm depth on previous sampling date	-1.55[1]
15	Air temperature (°C)	-6.12[5]
16	Maximum air temperature since previous sampling date (°C)	5.50[5]
17	Minimum air temperature since previous sampling date (°C)	2.49[4]

[1] Significant at .90 level

[2] Significant at .95 level

[3] Significant at .975 level

[4] Significant at .99 level

[5] Significant at .9995 level

TABLE VIII. Descriptions and significances of independent variables used in the analysis of vegetative phenology of *Artemisia nova*.

Variable	Description	Significance (t - ratio)
1	Soil temperature 38cm depth (°C)	3.27[5]
5	Soil moisture % 0-15cm depth on previous sampling date	-4.15[6]
6	Soil moisture % 15-30cm depth on previous sampling date	1.50[3]
7	Soil moisture % 46-61cm depth on previous sampling date	-1.06[2]
15	Air temperature (°C)	-1.04[1]
17	Minimum air temperature since previous sampling date (°C)	2.19[4]

[1] Significant at .80 level

[2] Significant at .85 level

[3] Significant at .90 level

[4] Significant at .975 level

[5] Significant at .995 level

[6] Significant at .9995 level

$$Y_{19} = 4.24 + .11X_1 - .34X_5 + .10X_6 - .03X_7 - .02X_{15} + .03X_{17}$$

where Y_{19} = vegetative phenophase value.

Significances of the partial regression coefficients are given in Table VIII. The multiple regression was found highly significant by analysis of variance ($P < .001$). The six independent variables selected accounted for 76.77% of the variability in vegetative phenophase value ($R^2 = .7677$).

Three factors promoted phenological development: soil temperature at 38cm depth (X_1), percent soil moisture at 15-30cm depth on the previous sampling date (X_6), and minimum air temperature since the previous sampling date (X_{17}). Three factors slowed or prolonged phenological development: percent soil moisture at 0-15cm depth on the previous sampling date (X_5), percent soil moisture at 46-61cm depth on the previous sampling date (X_7), and air temperature on the sampling date (X_{15}).

Analyses for Artemisia tridentata

Reproductive Phenology. Seven independent environmental variables were significant in the regression analysis of reproductive phenology of Artemisia tridentata (Table IX). The estimated multiple linear regression equation was:

$$Y_{18} = 1.19 + .15X_1 - .23X_7 + .002X_8 - .005X_{10} - .08X_{15} + .27X_{16} + .09X_{17}$$

where Y_{18} = reproductive phenophase value.

Significances of the partial regression coefficients are given in Table IX. The multiple regression was found highly significant by analysis of variance ($P < .001$). The seven independent variables selected accounted for 77.97% of the variability in reproductive phenophase value ($R^2 = .7797$). Four factors promoted phenological development: soil temperature at 38 cm depth (X_1), yearly total precipitation accumulation (X_8), maximum air temperature since the previous sampling date (X_{16}), and minimum air temperature since the previous sampling date (X_{17}). Three factors slowed or prolonged phenological development: per cent soil moisture at 46-61 cm depth on the previous sampling date (X_7), April 15-July 1 precipitation accumulation (X_{10}), and air temperature on the sampling date (X_{15}). Apparently air temperature extremes promoted phenological development and adequate soil moisture slowed development.

Vegetative Phenology. Seven independent environmental variables and one forage production variable were significant in the regression analysis of vegetative phenology of Artemisia tridentata (Table X). The

TABLE IX. Descriptions and significances of independent variables uses in the analysis of reproductive phenology of *Artemisia tridentata*.

Variable	Description	Significance (t - ratio)
7	Soil temperature 38 cm depth (°C)	2.49[2]
7	Soil moisture % 46-61 cm depth on previous sampling date	-6.07[4]
8	Yearly precipitation total accumulation (mm)	4.56[1]
10	April 15 - July precipitation accumulation (mm)	-3.58[4]
15	Air temperature (°C)	-2.79[3]
16	Mazimum air temperature since previous sampling date (°C)	5.51[4]
17	Minimum air temperature since previous sampling date (°C)	4.88[4]

[1] Significant at .90 level

[2] Significant at .99 level

[3] Significant at .995 level

[4] Significant at .9995 level

TABLE X. Descriptions and significances of independent variables used in the analysis of vegetative phenology of *Artemisia tridentata*.

Variable	Description	Significance (t - ratio)
1	Soil temperature 38 cm depth (°C)	3.77[4]
3	Soil moisture % 15-30 cm depth	-4.40[4]
5	Soil moisture % 0-15 cm depth on previous sampling date	1.31[1]
6	Soil moisture % 15-30 cm depth on previous sampling date	-3.22[3]
8	Yearly precipitation total accumulation (mm)	-3.47[4]
9	Oct. 15 - April 15 precipitation accumulation (mm)	7.41[4]
13	Total forage production (kg/ha/yr)	-1.94[2]
16	Maximum air temperature since previous sampling date (°C)	4.26[4]

[1] Significant at .90 level

[2] Significant at .95 level

[3] Significant at .995 level

[4] Significant at .9995 level

estimated multiple linear regression equation was:

$$Y_{19} = 0.85 + .10X_1 - .07X_3 + .03X_5 - .07X_6 - .001X_8 + .006X_9 - .0007X_{13} + .09X_{16}$$

where $Y_{19} \doteq$ vegetative phenophase value.

Significances of the partial regression coefficients are given in Table X. The multiple regression was found highly significant by analysis of variance ($P < .001$). The eight independent variables selected accounted for 77.07% of the variablility in vegetative phenophase value ($R^2 = .7707$).

Four factors promoted phenological development: soil temperature at 38cm depth (X_1), percent soil moisture at 0-15cm depth on the previous sampling date (X_5), October 15 - April 15 precipitation accumulation (X_9), and maximum air temperature since the previous sampling date (X_{16}). Three factors slowed or prolonged phenological development: percent soil moisture at 15-30cm depth (X_3), percent soil moisture at 15-30cm depth on the previous sampling date (X_6), and yearly precipitation total accumulation (X_8). The relationship between forage production (X_{13}) and phenological development was probably one of coincidence and not cause and effect.

SECTION III

PRECIPITATION PATTERN STUDY

1978

Introduction

During 1960 over 70 gauges were installed at 6 to 12 mile intervals throughout the Big Horn and Wind River Basins. Since that time approximately 20 gauges in the Big Horn Basin have been discontinued but some additional 100 gauges have been installed at various exclosures and study sites throughout western Wyoming. These gauges are cans, 12" in height and approximately 2.79" in diameter. Precipitation is read to inches of rainfall by measuring the water in ml. The can diameter allows one hundred ml of water to be equal to 1" of precipitation. The gauges are read on the same four dates each year -- April 15, July 1, September 1, and October 15. In the Big Horn Basin, at the urging of BLM personnel, precipitation recording procedures have been increased to eight recordings during a year on the dates March 1, April 15, June 1, July 1, August 1, September 1, October 1, and December 1. For this report data are shown only as having been recorded four times a year. Poor road conditions have been responsible for data omissions from the March and November dates in some instances. Personnel of the Worland, Rawlins, Casper, and Rock Springs Districts of the Bureau of Land Management cooperate with the University in reading the instruments. In the Big Horn Basin the Bureau has acquired small commercial gauges that have been established at a number of new locations. Some gauges are also read by personnel of the Soil Conservation Service and the Wyoming Game and Fish Commission.

The U.S. Weather Bureau and the U.S. Geological Survey precipitation data are used to provide additional information from other locations. This cooperative effort provides an effective network for future evaluation of precipitation patterns.

Precipitation data for 1978 from the University and BLM gauges are presented in Table I; those from the U.S. Weather Bureau stations are presented in Table II. A summary of precipitation by county and region is presented in Table III. Table IV is a compilation of precipitation data from all U.W. and BLM gauges in the Big Horn Basin.

RESULTS 1978

Precipitation during 1978 was generally greater than long-term averages. The most significant occurrances of greater-than-normal precipitation were recorded in the Big Horn Basin during spring. Some of those precipitation events have been classified as 100-year occurrances. In addition, the majority by far of all gauges were found to have greater-than-normal precipitation values (Table III). In the Big Horn Basin, average precipitation was more than 2.50" above long-term values, both for the U.W. gauges and for the U.S. Weather Bureau gauges. Data from the southwestern Wyoming rain gauges was less than average for the Weather Bureau recordings.

Preliminary evaluation of seasonal distribution of precipitation common to major geographic areas of Wyoming is expressed in Table V. The Big Horn Basin and Wind River Basin are commonly recognized as areas with low winter precipitation and strong concentration of precipitation during spring and early summer. Areas to the east and south and southwest across the Continental Divide do not often exhibit such extreme precipitation distribution characteristics.

TABLE I. Precipitation data for 1978 from University of Wyoming gauges for the periods October 15-April 15 (winter), April 15-July 1 (spring), July 1-September 1 (summer) and September 1-October 15 (fall).

Rain Gauge No.	Rain Gauge Name	Winter Apr 15 '78	Spring July 1 '78	Summer Sept 1 '78	Fall Oct 15 '78	Total '78	Long Term Average	No. of Years
	Big Horn County							
176	Basin Flats Exc.	1.43	4.20	1.26	1.40	8.92	6.40	12
123	Big Flat Exc.	1.22	3.94	1.21	1.64	8.01	6.03	11
194	Emblem Bench							
24	Halogeton Exc. #1	1.36	3.69	.68	1.55	7.28	5.44	19
167	Halogeton Exc. #2	1.23	3.50	.74	1.97	7.44	6.08	7
168	Halogeton Exc. #3	1.39	4.09	.78	1.95	8.21	5.52	7
12	Horse Creek	4.69	4.87	1.65	2.45	13.66	11.21	19
113	Horse Haven	1.20	4.20	1.36	1.65	8.41	6.71	12
21	Kane Deer	3.92	8.93	.88	1.96	15.69	12.32	14
149	Kane GRI	4.48	9.51	.94	1.99	16.92	13.07	11
116	Kane Seed	2.50	3.39	.40	2.56	8.85	7.02	11
148	Medicine Lodge GRI	5.96	5.72	3.94	2.12	17.74	14.24	11
175	Potato Ridge	3.08	3.83	1.65	1.65	10.21	8.06	11
23	Sheep Springs	5.64	6.10	3.36	2.60	17.70	13.94	18
174	Sheldon Gulch	3.17	4.11	1.84	1.40	10.52	7.65	11
	Park County							
147	Big Sage Exc.	1.63	8.91	1.53	1.73	13.80	8.28	10
146	Big Sky	1.70	9.40	1.36	1.92	14.38	8.91	10
100	Buffalo Basin	.56	6.98	1.78	1.61	10.93	10.32	12
193	Canyon	3.43	4.13	.75	1.23	9.54	9.01	6
145	Hill Top Spring	4.85	6.06	1.10	2.07	14.08	14.99	8
184	Little Dry Creek	1.90	4.77	1.56	1.00	9.23	8.20	4
192	Skyline	E2.50	3.19	1.07	1.57	E8.33	7.08	5
191	State Line	1.45	2.40	.72	2.20	6.77	6.11	5
	Washakie County							
1	Ant Hill Worland Exc.	1.18	4.78	.98	1.15	8.09	6.51	19
150	Big Trails BRI	4.58	10.67	1.67	1.44	18.36	13.42	11
41	Bud Kimball	E2.50	E6.80	E1.51	.87	E11.68	9.52	17
7	Buffalo Creek	E3.00	E5.10	1.53	.85	E10.48	10.70	16
17	Burnt Wagon	.85	4.62	1.61	.97	8.07	6.14	17
179	Chalk	.82	3.96	1.46	1.02	7.62	6.30	18
8	Demer	E3.79	E8-84	1.68	1.66	E15.97	8.52	19
4	Dutch Nick Flat	1.20	4.94	1.81	.91	8.86	7.09	18
15	15 Mile Study Area (179)	.82	3.96	1.46	1.02	7.26	6.30	18
177	Hawk	.97	4.53	1.44	.93	7.87	6.12	17
166	Mills Burn	3.51	9.91	1.71	1.32	16.45	12.99	8
185	Rice Burn	5.60	5.98	2.63	2.19	16.40	14.15	5
180	Sand Creek	1.71	5.30	1.12	1.33	8.81	6.72	12
36	Smilo	2.26	7.90	1.36	2.07	13.59	9.20	18
181	Tolman Ridge	1.66	.52	1.08	1.35	4.61	6.37	12
39	Two Mile Hill	E1.35	E4.00	E1.44	2.47	9.26	9.58	18
13	West Pasture	.79	5.33	1.36	.97	8.45	5.71	17
178	Willwood	.88	4.30	1.48	1.03	6.71	6.15	18
115	Worland Cattle Co.	E3.00	E8.00	E1.70	E2.00	E14.70	8.35	11
	Hot Springs County							
117	Big Bend Exc.	E2.00	E9.75	E1.96	1.76	E15.47	10.62	11
76	Cochran Exc.	E2.70	E11.00	E1.71	1.93	E17.34	10.51	18
77	Kirby Creek Exc.	E2.70	E11.00	E2.70	1.87	E18.27	9.69	16
11	Lower Enos Creek Exc.	1.33	7.36	2.25	2.25	13.19	10.76	11
133	North Butte(Thrmpl)Relic	1.89	10.12	2.13	1.79	15.93	11.26	7
182	Round Top Mtn Relic	E1.89	10.63	2.21	1.88	16.61	12.02	7
75	Sand Gulch Exc.	E2.95	E5.50	2.25	1.68	12.38	8.99	17
214	Twenty One Creek	1.25	E10.11	2.12	1.61	E15.09	15.09	1
22	Upper Enos Creek	2.42	8.56	3.28	1.80	16.06	15.03	10

TABLE I. (continued)

Rain Gauge No.	Rain Gauge Name	Winter Apr 15 '78	Spring July 1 '78	Summer Sept 1 '78	Fall Oct 15 '78	Total '78	Long Term Average	No. of Years
128	Oppenheimer #1	5.19	1.75	2.17	2.04	11.15	9.62	11
124	Poison Butte #1	5.90	2.02	2.24	2.15	12.31	10.71	11
125	Poison Butte #2	6.86	1.95	2.48	1.07	12.36	10.82	11
130	Powder Rim Pasture C#1	4.58	1.30	1.81	1.68	9.37	8.32	11
26	Red Wash #1	3.10	1.88	1.32	1.07	7.37	8.03	17
25	Red Wash #2	.60	1.45	1.24	.74	4.03	8.10	17
	Sweetwater County							
20	Black Mtn. Exc.	6.65	1.06	1.56	1.14	10.41	7.63	16
30	Boars Tusk Exc.	5.56	2.49	1.05	1.70	10.80	7.83	12
18	Cedar Mtn. Exc.	6.19	.70	.90	.98	8.77	8.29	16
102	Chandler Simpson Well	2.97	1.86	E1.50	1.05	E7.38	5.90	9
197	Costello Creek	3.50	.40	5.50	.80	10.20	11.21	7
103	Daley Hay Corral	4.67	3.09	1.12	.30	9.18	7.26	12
2	Farson Exc.	4.29	1.72	.80	1.00	7.81	6.61	13
104	J. O. Headquarters	4.90	1.64	1.10	.24	7.88	7.70	13
105	Len Hay Corral	4.84	1.02	1.36	.36	7.58	6.92	12
131	Powder Rim Pasture D#1	3.86	1.66	1.54	1.38	8.44	7.59	11
136	Powder Rim Pasture B#1	4.21	2.25	1.82	1.40	9.68	8.58	11
137	Powder Rim Pasture B#2	4.76	1.64	1.44	1.23	9.07	10.23	11
139	Powder Rim Pasture A#1	4.50	2.28	2.04	1.46	10.28	9.02	11
19	Radio Tower Exc.	5.42	1.73	E1.00	2.30	E10.45	7.53	18
196	Red Creek Ranch	4.70	.50	5.90	1.20	12.30	13.08	7
28	Red Wash #2 Exc.	2.80	1.70	.78	.65	5.93	7.11	17
101	Ten Mile Ridge	E3.50	1.48	.70	.60	E6.28	5.71	10
217	Big Hollow Bench	6.71	1.20	E1.20	.64	E9.75	9.75	1
218	North Rim	4.94	1.30	E1.20	.67	E8.11	E8.11	1
195	Parting of Ways Exc.	3.38	1.41	.80	1.50	7.09	7.09	1
	Uinta County							
31	Cumberland #1				1.52		8.04	12
34	Cumberland #4				2.65		8.40	12
	Lincoln County							
32	Cumberland #2				E2.66		9.44	13
33	Cumberland #3	E2.40	E3.25	E1.70	2.70	E10.05	11.04	14
35	Elk Mtn. Pit				1.20		9.37	11
198	Boulder Ridge Exc.	7.50		1.73	2.55		9.87	1
200	Mahagony Ridge Exc.	E5.60			1.75		9.88	1
216	Rock Creek Ridge Exc.	E5.60	3.01	1.75	2.45	E12.81	11.14	2
	Sublette County							
187	Antelope Exc.	5.11	1.83	1.10	.90	8.94	8.19	4
188	North Mesa	5.68	1.82	.72	.94	9.16	9.16	1
189	Sand Draw Pasture	4.33	1.78	1.38	.89	8.38	5.45	4
190	North Alkali	4.28	2.26	1.48	.90	8.92	5.97	4
	Big Horn County							
219	Blue Ridge WRA3	GI	4.22	2.54	.65	NR		
220	Cedar Mountain WRA4	GI	5.28	3.40	.75	NR		
224	Luman Creek WRA5	GI	5.91	5.25	.65	NR		
225	Potato Ridge WRA1	GI	4.41	3.07	.55	NR		
227	Sheep Springs WRA2	GI	5.90	5.35	.85	NR		
	Washakie County							
221	CottonwoodOilFieldWRA6	GI	4.68	2.22	.55	NR		
222	Cornell Gulch WRA10	GI	6.10	2.50	.70	NR		
223	Kirby Creek WRA9	GI	3.19	2.35	1.65	NR		
226	Sand Draw WRA8	GI	2.21	1.66	2.00	NR		
228	Spring Creek WRA7	GI	4.18	3.35	.75	NR		

TABLE I. (continued)

Rain Gauge No.	Rain Gauge Name	Winter Apr 15 '78	Spring July 1 '78	Summer Sept 1 '78	Fall Oct 15 '78	Total '78	Long Term Average	No. of Years
	Fremont County							
52	Alkali Flats	1.06	5.64	2.49	.81	10.00	8.79	18
5	Ant Plot (Lander)Exc.	1.77	5.50	.75	1.45	9.47	8.61	16
157	Bar X	5.30	1.56	.50	1.20	8.56	6.61	9
89	Birds Eye Ranch	2.07	3.17	1.42	1.08	7.74	8.07	15
10	Boysen Reservoir Exc.	1.34	1.97	1.75	.97	6.03	5.04	19
85	Bridger Creek Ranch	3.53	8.69	1.93	1.51	15.68	11.23	16
49	Canyon Creek	1.06	5.61	2.13	.79	9.59	8.67	17
59	Carter Divide Exc.	1.43	4.56	.56	1.00	7.55	8.37	17
88	Comet Mine	2.69	7.30	2.37	1.24	13.60	11.92	16
60	Dishpan Butte #1 Exc.	3.35	5.60	1.27	1.60	11.82	11.42	16
61	Dishpan Butte #2 Exc.	2.36	4.00	1.30	1.50	9.16	9.65	16
86	Dry Creek	1.07	E5.00	1.22	.83	E8.12	6.96	18
58	Empty Cartridge Exc.	1.64	5.22	.60	1.00	8.46	8.08	13
55	Fraser Seed Plot	1.40	6.01	1.79	.81	10.01	9.05	16
48	Fuller Seed Plot	1.62	E5.75	.94	.87	E9.18	8.29	17
46	Gibbs Butte	E1.10	4.20	2.02	1.10	E8.42	6.98	18
6	Granite Mtn Exc.	2.22	4.20	1.05	1.18	8.65	8.75	15
62	Hall Creek Divide Exc.	2.83	5.30	.75	1.15	10.03	11.80	17
87	Hoodoo Creek	1.66	3.32	1.44	.77	7.19	6.56	18
64	Hudson	2.15	4.72	.33	1.25	8.45	9.33	17
68	Johnson	.66	E6.00	1.58	1.08	E9.32	7.18	16
63	Little Pope Agie	2.65	4.80	1.70	1.44	10.59	11.28	17
56	Logan #1 Exc.	1.62	5.55	.95	1.00	7.62	8.90	17
57	Logan #2 Exc.	1.80	4.33	1.35	.95	8.43	8.34	16
16	Lower Gov't Draw#2 Exc.	2.58	5.08	1.00	1.23	9.89	10.56	17
81	Mack Ranch	2.19	6.88	1.34	1.36	11.77	8.95	14
67	Madden (Frenchie Draw)	1.29	6.13	1.97	1.07	10.46	9.66	17
14	McGraw Flat Exc.	1.70	3.92	.75	1.60	7.97	9.48	16
47	Muskrat Creek	1.68	4.96	1.60	.85	9.10	7.04	16
50	Muskrat #5 Exc.	1.62	5.68	1.00	1.15	9.45	8.72	17
51	Poison Creek	1.18	5.16	1.57	.89	11.94	7.90	16
80	Poison Draw	.75	4.94	1.20	1.12	8.01	7.18	18
65	Sand Draw	1.62	5.15	.50	1.10	8.37	9.03	15
169	Shoshoni Ant#2 Exc.	1.93	4.99	1.32	.92	9.16	8.44	7
170	Shoshoni Ant#4 Exc.	1.89	5.07	1.03	.93	8.92	8.08	7
158	Shoshoni Ant#7 Exc.	1.81	4.96	1.24	.94	8.95	8.44	8
172	Shoshoni Ant#8 Exc.	1.75	5.29	1.34	.96	9.34	8.18	7
171	Shoshoni Ant#9 Exc.	1.76	5.29	1.28	.94	9.27	8.31	7
173	Shoshoni Ant#11 Exc.	1.62	4.92	1.12	.85	8.51	8.14	7
11	Sweetwater Exc.	1.98	3.43	1.26	.62	7.29	8.70	15
9	Upper Gov't Draw#1 Exc.	E2.20	4.82	.57	1.20	E8.79	9.12	17
229	Divide Study Plot #3				GI			
	Natrona County							
143	Arminto Exc.	1.89	5.10	1.13	E.50	E8.62	9.12	11
109	Bolton Creek	2.81	5.16	1.36	.00	9.33	9.20	10
141	Donlin	1.25	4.91	1.44	.90	8.50	7.66	11
110	E.K.	1.89	5.10	1.13	E.50	E8.62	9.12	11
142	Merino	1.78	E6.00	2.45	.68	E10.91	9.33	11
108	Mud Springs	3.45	5.93	2.80	.90	13.08	11.38	11
107	Owl Draw	2.09	E5.20	2.20	.12	E9.61	10.03	12
144	Poison Spider	2.07	5.09	1.99	.36	9.51	9.23	11
106	Stinking Creek	.93	E5.00	1.82	.10	7.85	9.66	12
	Carbon County							
186	Flattop	4.48	2.17	1.52	1.34	9.51	8.59	6
27	Little Robber #5	5.17	2.14	1.82	1.80	10.93	9.73	16

GI = Gauge Installed

TABLE II. Precipitation data from selected U.S. Weather Bureau Stations for the period October 16, 1977, to October 15, 1978.[1]

Section Name	Winter Total 1978	Spring Total 1978	Summer Total 1978	Fall Total 1978	1978 Season Total[2]	Long Term Average[3]	Years of Record
Green River Drainage							
Big Piney			1.16	1.64		6.11	41
Farson	E2.62					7.61	55
Fontenelle Dam	2.45	3.35	1.02	.81	7.63	7.39	16
Green River	E2.37	2.30	1.95	1.55	8.17	8.54	72
Kemmerer 4 SW		E3.53	1.18	1.28		8.34	45
LaBarge 4 WNW	E2.28	3.01	1.23	.25	6.77	11.23	16
Pinedale		E2.90	1.15	1.44		8.11	55
Rock Springs	4.72	4.77	1.37	1.77	12.63	8.79	38
Rock Springs FAA AP	5.76	4.55	.97	1.43	12.71	8.79	46
Sage 4 NNW		2.85	1.94	2.04		9.87	48
Wamsutter	2.36	2.65	2.13	.70	7.84	6.11	38
Big Horn Drainage							
Anchor Dam		9.51	3.22	E2.52		15.28	17
Basin	1.73	3.61	1.32	1.54	8.20	6.47	71
Black Mtn.	2.83	10.61	2.47	2.60	18.51	11.17	16
Cody	2.51	7.10	1.90	1.57	13.08	9.63	68
Cody 12 SE	E2.61	8.20	1.32	2.37	E14.50	12.55	16
Deaver	1.27	2.51	.69	1.79	6.26	5.58	60
Emblem	1.96	4.28	1.00	1.74	8.98	5.58	32
Grass Creek	1.65	E8.96	E2.18	2.38	15.17	11.68	26
Greybull	2.35	3.38	1.42	1.93	9.08	7.49	27
Heart Mtn.	E1.77	5.26	1.28	1.99	E10.30	7.90	28
Lovell	E1.86	4.42	.90	2.32	E9.50	6.95	66
Powell	2.02	3.42	1.09	2.00	8.53	6.09	69
Rairden 2 WSW	1.79	5.32	1.52	1.23	9.86	7.01	39
Shell 2 NE		3.29					20
Sunshine 2 ENE	3.22	10.33	2.15	1.44	17.14	14.49	13
Ten Sleep 4 NE	5.09	7.19	2.46	1.32	16.06	12.95	15
Ten Sleep 16 SSE	4.14	10.17	2.00	1.52	17.83	13.06	20
Thermopolis 2	2.72	12.82	2.33	1.74	19.61	11.17	14
Thermopolis 25 WNW	1.74	8.59	3.35	E1.73	E15.41	11.48	21
Worland	1.77	7.20	1.43	1.74	12.14	7.40	65
Worland FAA AP	1.57	6.45	1.40	1.39	10.81	5.67	18
Wind River Drainage							
Boysen Dam	1.69	6.81	2.10	1.18	11.78	7.88	32
Ft. Washakie 2 S	E3.03	E6.41	1.12	E.98	E11.54	12.30	70
Gas Hills 4 E	2.40	7.02	1.78	.57	11.77	9.84	14
Lander WSO AP	3.23	6.47	1.07	1.82	12.59	13.84	87
Lost Cabin		6.51	2.30	1.50		6.52	17
Pavillion		E4.95	.92	E.71		8.82	54
Riverton	E1.94	6.12	.91	1.35	E10.32	8.56	59
Sand Draw						9.11	31
Shoshoni	1.32	4.40	1.23	1.08	8.03	5.41	38
Platte Drainage							
Bates Creek 2	3.65	9.64	2.23	.10	15.62	12.77	6
Muddy Gap				E.78		11.85	29
Rawlins FAA AP	4.21	2.71	1.83	.86	9.61	10.83	39
South Pass City	E8.92	3.78	1.49	2.84	E17.03	13.73	70
Casper 2 E	3.08	9.16	3.30	.71	16.25	13.37	59
Casper WSO AP	4.37	8.62	3.55	.66	17.20	11.22	41

[1] Weather Bureau, 1978. Climatological Data-Wyoming Annual Summary of Commerce. Vols. 86-87.

[2] Computed for the period October 15, 1977, to October 15, 1978.

[3] Weather Bureau, 1975. Climatological Data-Wyoming Annual Summary, U.S. Dept. of Commerce, Vol. 87, No. 13.

TABLE III. Precipitation summary by county and region for 1978 for U.W., BLM and Weather Bureau Stations. Data in inches precipitation from October 16, 1977 through October 15, 1978.

County	No. of Gauges	Long Term Ave.Ppt.	Ppt." Total 1978	1978 Diff. from Average	Number of Gauges Above (+) or Below (-) Long Term Average	
					+	-
Big Horn	14	8.83	11.35	+2.52	14	0
Park	8	9.11	10.88	+1.77	7	1
Washakie	19	8.41	10.60	+2.19	16	3
Hot Springs	9	11.54	15.59	+4.05	9	0
	50	9.20	11.75	+2.55	46	4
Fremont	41	8.68	9.28	+0.60	28	13
Natrona	9	9.41	9.56	+0.15	5	4
Carbon	8	9.24	9.63	+0.39	6	2
Sweetwater	17	8.04	9.14	+1.00	13	4
Uinta	2	8.22	-	-	-	-
Lincoln	2	11.92	11.43	-0.49	1	1
Sublette	4	7.19	8.85	+1.66	4	0
Weather Bureau Stations						
Big Horn Drainage	19	9.06	12.69	+3.63	17	2
Wind River Drainage	6	9.05	11.00	+1.95	4	2
Platte Drainage	5	12.20	15.14	+2.94	4	1
Green River Drainage	6	8.47	9.28	+0.81	4	2

TABLE IV. Precipitation data for all U.W. and BLM gauges in the Big Horn Basin for the 1978 season.

Rain Gauge No.	Gauge Name	Mar 1 '78	Apr 15 '78	Jun 1 '78	Jul 1 '78	Aug 1 '78	Sep 1 '78	Oct 15 '78	Dec 1 '78	1978 Total	Long Term Average	No. Years Record
1	Ant Hill Worland Exc.	NR	1.18	4.78	.00	.40	.58	1.15	NR	8.09	6.51	19
176	Basin Flats Exc.	NR	1.43	NR	4.20	.65	.61	1.40	NR	8.29	6.40	12
207	Beaver Slide BLM 7	.96	.29	9.28	.66	.94	.69	.95	NR	13.77	13.77	1
117	Big Bend Exc.	NR	E2.00	NR	E9.75	E1.00	E.96	1.76	NR	E15.47	10.52	11
123	Big Flat Exc.	NR	1.22	NR	3.94	.63	.58	1.64	NR	8.01	6.03	11
147	Big Sage Exc.	NR	1.63	NR	8.91	NR	1.53	1.73	NR	13.80	8.28	10
146	Big Sky Exc.	NR	1.70	NR	9.40	NR	1.36	1.92	NR	14.38	8.91	10
150	Big Trails GRI Exc.	NR	4.58	NR	10.57	.50	1.17	1.44	NR	18.36	13.42	11
41	Bud Kimball Exc.	NR	E2.50	NR	E6.80	E.25	1.26	.87	NR	E11.68	9.52	17
100	Buffalo Basin Exc.	NR	.56	6.46	.52	1.26	.52	1.61	NR	10.93	10.32	12
7	Buffalo Creek Exc.	NR	E3.00	NR	E5.10	.29	1.24	.85	NR	E10.48	10.70	16
17	Burnt Wagon Exc.	NR	.85	4.36	.26	.89	.74	.97	NR	8.07	6.14	17
193	Canyon	NR	3.43	NR	4.13	NR	.75	1.23	NR	9.54	9.01	6
179	Chalk Exc.	NR	.82	3.71	.25	.54	.92	1.02	NR	7.26	6.30	18
76	Cochran Exc.	NR	E2.70	NR	E11.00	.35	1.36	1.93	NR	E17.34	10.51	18
208	Dead Indian BLM 8	.49	.09	3.15	1.02	.75	.22	1.08	NR	6.80	6.80	1
8	Demer Exc.	NR	E3.79	E8.50	E.34	E.80	.88	1.66	NR	E15.97	8.52	19
212a	Dorsey Creek BLM 12	.50	.11	5.22	.18	.64	.65	1.44	NR	8.74	8.74	1
212b	Dorsey Creek UW Gauge											
4	Dutch Nick Flats Exc.	NR	1.20	4.63	.31	.77	1.04	.91	NR	8.86	7.09	18
199	East Ridge Exc.											
211	Elk Creek BLM 11	.36	.02	4.08	.37	.71	.69	1.01	NR	7.24	7.24	1
194	Emblem Bench											
15	Fifteen Mile Pasture	NR	.82	3.71	.25	.54	.92	1.02	NR	7.26	6.30	18
24	Halogeton Exc. #1	NR	1.36	NR	3.69	.36	.32	1.55	NR	7.28	5.44	19
167	Halogeton Exc. #2	NR	1.23	NR	3.50	.32	.42	1.97	NR	7.44	6.08	7
168	Halogeton Exc. #3	NR	1.39	NR	4.09	.40	.38	1.95	NR	8.21	5.52	7
177	Hawk Exc.	NR	.97	4.28	.25	.74	.70	.93	NR	7.87	6.12	17
145	Hilltop Spring	NR	4.85	NR	6.06	NR	1.10	2.07	NR	14.08	14.99	8
12	Horse Creek Exc.	NR	4.69	NR	4.87	.89	.76	2.45	NR	13.66	11.21	19
113	Horse Haven Exc.	NR	1.20	NR	4.20	.69	.67	1.65	NR	8.41	6.71	12
21	Kane Deer Exc.	NR	3.92	NR	8.93	.54	.34	1.96	NR	15.69	12.32	14
149	Kane GRI Exc.	NR	4.48	NR	9.51	.64	.30	1.99	NR	16.92	13.07	11
116	Kane Seed Exc.	NR	2.50	NR	3.39	NR	.40	2.56	NR	8.85	7.02	11

TABLE IV. Continued

Rain Gauge No.	Gauge Name	Mar 1 '78	Apr 15 '78	Jun 1 '78	Jul 1 '78	Aug 1 '78	Sep 1 '78	Oct 15 '78	Dec 1 '78	1978 Total	Long Term Average	No. Years Record
77	Kirby Creek Exc.	NR	E2.70	NR	E11.00	E1.50	1.20	1.87	NR	E18.27	9.69	16
184	Little Dry Creek	NR	1.90	NR	4.77	1.45	.11	1.00	NR	9.23	8.20	4
111	Lower Enos Creek Exc.	NR	1.33	7.14	.22	1.91	.34	2.25	NR	13.19	10.76	11
148	Medicine Lodge GRI Exc.	NR	5.96	NR	5.72	2.38	1.56	2.12	NR	17.74	14.24	11
166	Mills Burn	NR	3.51	NR	9.91	.70	1.01	1.32	NR	16.45	12.99	8
205a	Murphy Draw BLM 5	E.60	.24	3.98	.60	.65	.61	1.68	NR	8.36	8.36	1
205b	Murphy Draw UW Gauge											
183	North Butte Thermopolis	NR	1.89	9.96	.16	1.08	1.05	1.79	NR	15.93	11.26	7
215	O.B. Reservior BLM 15	.98	.26	E5.00	.05	2.10	.52	1.15	NR	E10.06	10.06	1
175	Potato Ridge Exc.	NR	3.08	NR	3.83	.94	.71	1.65	NR	10.21	8.06	11
202a	Prospect Creek BLM 2	.99	.54	5.07	E.25	.96	.73	2.11	NR	E10.65	10.65	1
202b	Prospect Creek UW Gauge											
204a	Grass Creek BLM 4 (Rankin Exc.)	.72	.33	6.34	.15	.61	.67	1.71	NR	10.53	10.53	1
204b	Rankin Basin Exc. UW Gauge	NR	1.38	NR	6.53	.58	.49	1.64	NR	10.62	10.62	1
204c	Rankin Basin Exc. Lrg.Gauge	NR	1.34	NR	7.86	.70	.60	1.99	NR	12.49	12.49	1
185	Rice Burn Exc.	NR	5.60	NR	5.98	1.87	.76	2.19	NR	16.40	14.15	5
182	Round Top Mtn. Relic	NR	E1.89	10.37	.26	1.11	1.10	1.88	NR	E16.61	12.02	7
180	Sand Creek Exc.	NR	1.71	NR	5.30	.47	.65	1.33	NR	8.81	6.72	12
75	Sand Gulch Exc.	NR	E2.95	NR	E5.50	E1.00	E1.25	1.68	NR	12.38	8.99	17
209	Schuster Draw BLM 9	.47	.19	E5.00	.26	.80	1.45	E.80	NR	E8.95	8.95	1
23	Sheep Springs Exc.	NR	5.64	NR	6.10	1.70	1.66	2.60	NR	17.70	13.94	18
174	Sheldon Gulch Exc.	NR	3.17	NR	4.11	1.12	.72	1.40	NR	10.52	7.65	11
192	Skyline	NR	2.50	NR	3.19	NR	1.07	1.57	NR	8.33	7.08	5
36	Smilo Exc.	NR	2.26	NR	7.90	.86	.50	2.07	NR	13.59	9.20	18
210	So. Fork 15-Mile BLM 10	.59	.25	5.69	.25	.53	.92	1.49	NR	9.72	9.72	1
203	Spring Creek BLM 3	.20	.11	4.86	.15	.51	1.03	1.21	NR	8.07	8.07	1
206	Squaw Teats BLM 6	E.31	.31	3.55	.24	.98	.40	1.84	NR	7.63	7.63	1
191	Stateline	NR	1.45	NR	2.40	NR	.72	2.20	NR	6.77	6.11	5
181	Tolman Ridge Exc.	NR	1.66	NR	.52	.44	.64	1.35	NR	4.61	6.37	12
214	Twenty One Creek BLM 14	.68	.57	E10.00	.11	1.53	.59	1.61	NR	E15.09	15.09	1
39	Two Mile Hill Exc.	NR	E1.35	NR	E4.00	E.25	1.19	1.01	1.46	E9.26	9.58	18
22	Upper Enos Creek Exc.	NR	2.42	8.33	.23	3.09	.19	1.80	NR	16.06	15.03	10
213	Wagonhound BLM 13	.59	.53	4.69	.31	.92	.65	2.17	NR	9.86	9.86	1
201	Waugh Dome BLM 1	.65	.17	6.55	.24	1.21	2.54	1.69	NR	13.05	13.05	1
115	Worland Cattle Co. Exc.	NR	E3.00	NR	E8.00	NR	E1.70	E2.00	NR	E14.70	8.35	11

TABLE IV. Continued

Rain Gauge No.	Gauge Name	Mar 1 '78	Apr 15 '78	Jun 1 '78	Jul 1 '78	Aug 1 '78	Sep 1 '78	Oct 15 '78	Dec 1 '78	1978 Total	Long Term Average	No. Years Record
13	West Pasture Exc.	NR	.79	4.76	.57	.60	.76	.97	NR	8.45	5.71	17
178	Willwood Exc.	NR	.88	4.13	.17	.50	.98	1.03	NR	6.71	6.15	18
219	Blueridge WRA 3		INST	4.00	.22	.84	1.70	.65	NR			
220	Cedar Mtn WRA 4		INST	5.10	.18	1.70	1.70	.75	NR			
221	Cottonwood Field WRA 6		INST	4.60	.08	.72	1.50	.55	NR			
222	Cornell Gulch WRA 10		INST	5.90	.20	1.05	1.45	.70	NR			
223	Kirby Creek WRA 9		INST	3.10	.09	1.35	1.00	1.65	NR			
224	Luman Creek WRA 5		INST	5.55	.36	2.35	2.90	.65	NR			
225	Potato Ridge Exc WRA 1 UW 175		INST	3.85	.56	.92	2.15	.55	NR			
226	Sand Draw WRA 8		INST	2.10	.11	.76	.90	2.00	NR			
227	Sheep Springs Exc WRA 2 UW 23		INST	5.30	.60	1.85	3.50	.85	NR			
228	Spring Creek Road WRA 7		INST	3.90	.28	1.85	1.50	.75	NR			

INST = Date gauge installed

Table V. Seasonal Distribution of precipitation (inches) by county, region, and drainage areas for 1978.

U.W. and BLM Precipitation Gauges	Recording Dates 1978 4/15	7/1	9/1	10/15	No. of Gauges	1978 Total Avg. Ppt.	Long Term Ann. Avg.	No. Gauges above (+) or below(-) long term avg. (+)	(-)
Big Horn County	2.95	5.00	1.48	1.92	14	11.40	8.84	14	0
Park County	2.25	5.73	1.23	1.67	8	10.88	9.11	7	1
Washakie County	2.16	5.74	1.51	1.27	19	10.60	8.41	16	3
Hot Springs County	2.12	9.34	2.29	1.84	9	15.59	11.55	9	0
Big Horn Basin Avg.[1]	2.39	6.18	1.60	1.62	50	11.77	9.21	46	4
Percent by season	20.3%	52.5%	13.5%	13.7%		100.0%			
Fremont County	1.90	4.99	1.28	1.08	41	9.25	8.68	28	13
Natrona County	2.01	5.28	1.81	.45	9	9.56	9.41	5	4
Central Wyo. Avg.	1.92	5.04	1.38	.97	50	9.33	8.81	33	17
Percent by Season	20.6%	53.9%	13.8%	11.7%		100.0%			
Carbon County	4.48	1.83	1.82	1.49	8	9.63	9.24	6	2
Sweetwater County	4.62	1.56	1.66	1.03	20	8.87	8.04	15	5
South Wyo. Avg.[1]	4.58	1.64	1.71	1.16	28	9.09	6.01	21	7
Percent by Season	50.4%	18.0%	18.8%	12.8%		100.0%			
Uinta County	-	-	-	-	2	-	8.22	2	-
Lincoln County	4.00	3.13	1.72	2.58	2	11.43	11.92	1	1
Sublette County	4.85	1.92	1.17	.91	4	8.85	7.19	4	0
West Wyo. Avg.[1]	4.57	2.32	1.35	1.47	6	9.71	8.63	7	1
Percent by season	47.1%	23.9%	13.9%	15.1%		100.0%			
Weather Bureau Precipitation Stations									
Big Horn Drainage	2.35	6.83	1.70	1.81	19	12.69		17	2
Percent by season	18.5%	53.8%	13.4%	14.3%		100.0%			
Wind River Drainage	2.27	6.20	1.37	1.16	6	11.00	9.05	4	2
Percent by season	20.6%	56.4%	12.4%	10.6%		100.0%			
Platte Drainage	4.85	6.78	2.48	1.03	5	15.14	12.20	4	1
Percent by season	32.0%	44.8%	16.4%	6.8%		100.0%			
Green River Drainage	3.32	3.44	1.44	1.08	6	9.28	8.47	4	2
Percent by season	35.8%	37.1%	15.5%	11.6%		100.0%			

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[1] Weighted average over all gauges by county or drainage

SECTION IV

EXCLOSURE STUDIES (PRODUCTION, COVER, AND PRECIPITATION PHASE)

1978

Introduction

Studies of vegetation forage production from several exclosures and relic areas of the Big Horn and Wind River Basins were initiated during the 1962 field season. These studies have been expanded and continued annually since that time to include 40 different exclosures throughout the western half of Wyoming. The objectives of the program are to determine:

(1) the relationship of vegetation production with phenodynamics and environmental data;

(2) the relationship of annual herbage production to area cover percentage;

(3) the influence of some range improvement practices on herbage production and area cover;

(4) the relationship of percentage frequency to area cover and herbage production.

Methods and Procedures

Area cover and herbage production studies on sagebrush-grass sites were conducted on transects of 20 quadrats, 1' x 1', spaced systematically along a randomly located 100' steel tape. On sites dominated by saltbush, a variation of the sampling technique, described in the 1968 results, was used to measure herbage production. Twenty 1' x 10' plots were located systematically along a randomly located 100' steel tape. Each 1' x 10' plot was subsampled for vegetative cover using 10 1' x 1' plots.

Area cover of all herbaceous semi-woody and woody species was estimated within each square foot plot. Data of shrub crown cover and basal cover of plains pricklypear, Hood's phlox and Hooker sandwort were not combined when comparing area cover to herbaceous production since this group of plants was not clipped.

Herbage production was determined by clipping herbaceous species at ground or crown level. The clipping procedure was conducted on or near the same date as the previous year for each exclosure. Production field procedures are initiated each year shortly after July 4 on the sites dominated by Gardner saltbush. It is treated as a herbaceous species and all new annual growth is clipped at that time for determination of total production. Clipping procedures for measures of grass and forb production are completed by August 22 each year with latest activities at sagebrush-grass exclosures in the Wind River Basin. Clippings were oven-dried at 70° C for 24 hours prior to weighing.

On areas where animal use had occurred prior to clipping, utilization estimated by species were made. These estimates were made at the same time and within each plot when clipped. The utilization values were averaged by species for the 20 plots and later used to adjust production for herbage lost by utilization.

As in 1968 and 1971 through the present, by adding the shrubby and mat forming species production to the clipped production, an index of total production was derived. Shrub and mat forming plant production was obtained by a modified double-sampling technique during late September and October. Weight units were estimated on 20 quadrats, 4' x 5', subdivided into six inch squares, spaced 6-12 steps apart across the study area. Shrubby species larger than six square inches, primarily big sagebrush, were estimated using the six inch square as one weight unit. Mat forming plants and shrubs smaller than six square inches were estimated by weight units of characteristic plant shape and size. Three of these weight units for each species were clipped for weight determination. Each of these units was dried in an oven at 70° C for 96 hours. The average gram weight of the three weight units, multiplied times the total number of estimated units in 20 quadrats, was converted to lbs/acre, an estimate of annual production.

At the same time clipped production data were collected during July and August, pictures of the transects were taken giving a pictorial history from year to year at each study location.

Precipitation data was recorded from simple aluminum rain gauges installed at each exclosure. The rain gauge has a diameter of 2.79 inches; so each 100 milliliters of water recorded in the gauge equals on inch of precipitation. Oil is added to each gauge after reading to prevent evaporation. During the winter months antifreeze is added in known amounts to prevent the gauges from freezing and breaking. Precipitation data has been collected four times a year -- April 15, July 1, September 1 and October15. In the Big Horn Basin however moisture in gauges, beginning in 1977, was read eight times during the year - March 1, April 15, June 1, July 1, August 1, September 1, October 15, December 1. BLM personnel responsible for rangeland inventory and hydrologic interrelationships urged the increased frequency of recording precipitation. A number of new locations were established and small commercial gauges installed on them. The new gauges were located primarily in western Big Horn Basin. The additions serve well to provide information from throughout the Basin.

Results 1978

The information presented in this 1978 Annual Report is in the same format as past Arid Land Ecology Annual Reports. Basal cover, frequency, production and precipitaion data are presented in summary sheets; one summary for each study area treatment. Table I gives an alphabetical listing of study areas, the county where each is located and the treatments studied at each area. Table II is a list of the names of plants which occurred in the production study areas, their four-letter code, botanical name, life form and longevity. Table III gives the utilization by species and production value in lbs/acre that occurred at the different exclosures and treatment. Study areas that are not mentioned showed no significant amount of utilization. Table IV has an intra-table index for each of the study areas. The summary sheets provide data of clipped production (herbaceous species), shrub production, total production, percent of utilization and precipitation data.

Forage production in the Wind River Basin during 1978 was nearly the same as the long-term averages since 1962. Deviations above and below the average were due to differences in shrub production. In particular, in the Big Horn Basin production of Atriplex gardneri was unusually high at the Halogeton and Sand Gulch exclosures. This increase was due to precipitation in May - two to four inches above normal. The summer months of June and July were very deficient in moisture; the exclosures where moisture was minimal showed low shrub production. Exclosures which received average moisture during the fall showed many seed heads present on the Artemisia species and production totals were slightly higher than the long-term average. As with previous years, total cover estimated did not correspond well with total production. However, proportionate changes between perennial grass cover and shrub cover show positive correlation with appreciable changes in grass and shrub production.

At Lander Ant grass production was very low and shrub production high. Cover estimates reflected the same proportionate change. A similar correlation existed at Halogeton #3, a proportional increase in cover estimate to that of an increase in perennial grass and shrub production. Proportionate change in cover estimates and production estimates appeared to be more reliable for the perennial grasses than for shrub species.

The much greater than normal early spring precipitation caused some interesting herbage production responses. At the Burnt Wagon exclosure Gardner saltbush was measured at 366 and 272 lbs/A In and Out of the exclosure respectively; perennial grass production was very slight; but perennial forbs responded dramatically to the early spring rainfall with 20 and 164 lbs/A In and Out respectively. The greater competitive relation for moisture inside the exclosure was expressed by the much lower forb production but a greater saltbush production than outside.

A similar response was noted at Cumberland # 1 exclosure where annual forb production In-Spray was 0.0 but 392 lbs/A on the Out-Spray site, resulting primarily from Nuttall monolepis. Also, perennial grass In-Spray was 531 lbs/A but only 227 lbs/A Out-Spray; the difference again reflecting vegetative competitive interactions as a result of long term protection from grazing within the exclosure.

TABLE I. An alphabetical listing of study areas, the county where each occurs, the treatments studied at each area, and table of contents.

County Name Code	Exclosure Name	County	Treatment	Page
2017	Big Trails G.R.I. Exc.	Washakie	Inside Spray Outside Native	
1002	Boysen Reservoir Exc.	Fremont	Inside Native Outside Native	
2007	Bud Kimball Exc.	Washakie	Inside Native Outside Native Inside spray Outside spray	
2002	Buffalo Creek Exc.	Washakie	Inside Native Outside Native	
2003	Burnt Wagon Exc.	Washakie	Inside Native Outside Native	
1501	Cochran Exc.	Hot Springs	Inside Native Inside Pitted Outside Native Outside Spray	
1901	Cumberland Exc. #1	Uinta	Inside Native Outside Native Inside Spray Outside Spray	
1201	Cumberland Exc. #2	Lincoln	Inside Native Outside Native	
*	(Cumberland Three on 3rd page of table)		Inside Spray Outside Spray	
1902	Cumberland Exc. #4	Uinta	Inside Native Outside Native	
2004	Demer	Washakie	Inside Native Outside Native	
2005	Dutch Nick Exc.	Washakie	Inside Native Outside Native	
0404	Farson Exc.	Sweetwater	Inside Native Outside Native	
1007	Granite Mountain Exc.	Fremont	Inside Native Outside Native Inside Spray Outside Spray	
0901	Halogeton Pasture Exc. #1	Big Horn	Inside Native	
0905	Halogeton Pasture Exc. #2	Big Horn	Inside Native	
0903	Halogeton Pasture Exc. #3	Big Horn	Inside Native	
0913	Horse Creek Exc.	Big Horn	Inside AGSP Outside AGSP Inside AGSM Outside AGSM Inside ARNO Outside ARNO	

TABLE I. (continued)

County Name Code	Exclosure Name	County	Treatment	Page
0914	Kane Deer Exc.	Big Horn	Inside Native	
			Outside Native	
			Inside Spray	
			Outside Spray	
0921	Kane G.R.I. Exc.	Big Horn	Inside Native	
			Outside Spray	
1502	Kirby Creek Exc.	Hot Springs	Inside Native	
			Outside Native	
1001	Lander Ant Exc.	Fremont	Inside Native	
			Outside Native	
1003	Lower Gov't Draw Exc.	Fremont	Inside Native	
			Outside Native	
			Inside Spray	
			Outside Spray	
1004	McGraw Flat Exc.	Fremont	Inside Native	
			Outside Native	
0920	Medicine Lodge G.R.I. Exc.	Big Horn	Inside Spray	
			Outside Native	
2301	Mesa Antelope	Sublette	Inside Native	
			Outside Native	
1503	North Butte Relic Area	Hot Springs	Native	
1504	Round Top Relic Area	Hot Springs	Native	
1505	Sand Gulch Exc.	Hot Springs	Inside Native	
			Outside Native	
1009	Shoshone Ant Exc. #2 North	Fremont	Inside Native	
	South		Inside Native	
			Outside Native	
1011	Shoshone Ant Exc. #4 North	Fremont	Inside Native	
	South		Inside Native	
			Outside Native	
1013	Shoshone Ant Exc. #7 North	Fremont	Inside Native	
	South		Inside Native	
			Outside Native	
1014	Shoshone Ant Exc. #8 North	Fremont	Inside Native	
	South		Inside Native	
			Outside Native	
1015	Shoshone Ant Exc. #9 North	Fremont	Inside Native	
	South		Inside Native	
			Outside Native	
1017	Shoshone Ant Exc. #11 North	Fremont	Inside Native	
	South		Inside Native	
			Outside Native	
2009	Smilo Exc.	Washakie	Inside Native	
			Outside Native	
			Inside Spray	
			Outside Spray	

TABLE I. (continued)

County Name Code	Exclosure Name	County	Treatment	Page
1005	Sweetwater Exc.	Fremont	Inside ARNO	
			Outside ARNO	
			Inside ARTR	
			Outside ARTR	
2010	Two Mile Hill Exc.	Washakie	Inside Native	
			Outside Native	
1006	Upper Gov't Draw Exc.	Fremont	Inside Native	
			Outside Native	
			Inside Spray	
			Outside Spray	
2006	West Pasture Exc.	Washakie	Inside Native	
			Outside Native	
* 1202	Cumberland Three	Lincoln	Inside Native	
			Outside Native	
			Inside Spray	
			Outside Spray	

TABLE II. LIST OF PLANT NAMES WHICH OCCURRED IN PRODUCTION STUDY AREAS.

Code	Genus-Species	Common Name	Life Form	Longevity
AGGL	Agoseris glauca	Pale agoseris	Forb	Perennial
AGCR	Agropyron cristatum	Crested wheatgrass	Grass	Perennial
AGSM	Agropyron smithii	Western wheatgrass	Grass	Perennial
AGSP	Agropyron spicatum	Bluebunch wheatgrass	Grass	Perennial
ALTE	Allium textile	Prairie onion	Forb	Perennial
AMAL	Amelanchier alnifolia	Saskatoon serviceberry	Shrub	Perennial
ANRO	Antennaria rosea	Rose pussytoes	Mat-form	Perennial
ARHO[2]	Arabis holboellii	Holboell rockcress	Forb	Perennial
ARLI	Arabis lignifera	Woody rockcress	Forb	Annual
ARCO	Arenaria congesta	Ballhead sandwort	Forb	Perennial
ARHO	Arenaria hookeri	Hooker sandwort	Mat-form	Perennial
ARFE	Aristida fendleriana	Fendler three-awn	Grass	Perennial
ARFR	Artemisia frigida	Fringed sagewort	Half-shrub	Perennial
ARNO	Artemisia nova	Black sagebrush	Shrub	Perennial
ARPE	Artemisia pedatifida	Birdsfoot sagewort	Half-shrub	Perennial
ARSP	Artemisia spinescens	Bud sagewort	Half-shrub	Perennial
ARTR	Artemisia tridentata	Big sagebrush	Shrub	Perennial
ASDI	Astragalus diversifolius	Meadow milkvetch	Forb	Perennial
ASDR	Astragalus drummondii	Drummond milkvetch	Forb	Perennial
ASPU	Astragalus purshii	Pursh loco	Forb	Perennial
AST	Astragalus spp.	Milkvetch	Forb	Perennial
ATCO	Atriplex confertifolia	Shadscale saltbush	Shrub	Perennial
ATGA	Atriplex gardneri	Gardner saltbush	Half-shrub	Perennial
BOGR	Bouteloua gracilis	Blue grama	Grass	Perennial
BRJA	Bromus japanicus	Japanese chess	Grass	Annual
BRTE	Bromus tectorum	Cheatgrass	Grass	Annual
CANU	Calochortus nuttallii	Sego mariposalily	Forb	Perennial
CAMI	Camelina microcarpa	Littlepod falseflax	Forb	Annual
CAEL	Carex eleocharis	Needleleaf sedge	Sedge	Perennial
CAFI	Carex filifolia	Threadleaf sedge	Sedge	Perennial
CAAN	Castilleja angustifolia	Narrowleaf Indianpaintbrush	Forb	Perennial
CALI	Castilleja linariaefolia	Wyoming Indianpaintbrush	Forb	Perennial
CELA	Ceratoides lanata	Winterfat	Half-shrub	Perennial
CHDO	Chaenactis douglasii	Douglas dustymaiden	Forb	Perennial
CHAL	Chenopodium album	Lambsquarter goosefoot	Forb	Annual
CHNA	Chrysothamnus nauseosus	Rubber rabbitbrush	Shrub	Perennial
CHVI	Chrysothamnus viscidiflorus	Douglas rabbitbrush	Shrub	Perennial
COPA	Comandra pallida	Pale bastardtoadflax	Forb	Perennial
CRAC	Crepis acuminata	Tapertip hawksbeard	Forb	Perennial
CRBR	Cryptantha bradburiana	Minerscandle cryptantha	Forb	Perennial
CRFL	Cryptantha flavoculata	Roughseed cryptantha	Forb	Perennial
CYMO	Cymopterus montanus	Mountain springparsley	Forb	Perennial
DEGE	Delphinium geyeri	Plains larkspur	Forb	Perennial
DEPI	Descurainia pinnata	Pinnate tansymustard	Forb	Annual
ELJU	Elymus junceus	Russian wildrye	Grass	Perennial
ERCO	Erigeron compositus	Fernleaf fleabane	Forb	Perennial
ERPU	Erigeron pumilus	Low fleabane	Forb	Perennial
ERI	Erigeron spp.	Fleabane	Forb	Perennial
ERCE	Eriogonum cernuum	Nodding wildbuckwheat	Forb	Annual

TABLE II. (continued)

Code	Genus-Species	Common Name	Life Form	Longevity
ERMI	Eriogonum microthecum	Slenderbush wildbuckwheat	Forb	Perennial
EROV	Eriogonum ovalifolium	Cushion wildbuckwheat	Mat-form	Perennial
ERSU	Eriogonum subalpinum	Subalpine eriogonum	Mat-form	Perennial
ERI[2]	Eriogonum spp.	Wildbuckwheat	Mat-form	Perennial
FEID	Festuca idahoensis	Idaho fescue	Grass	Perennial
GACO	Gaura coccinea	Scarlet gaura	Forb	Perennial
GICO	Gilia congesta	Ballhead gilia	Forb	Perennial
GILE	Gilia leptomeria	Gilia	Forb	Annual
GIPU	Gilia pumila	Dwarf gilia	Forb	Annual
GISP	Gilia spicata	Spike gilia	Forb	Perennial
HAGL	Halogeton glomeratus	Halogeton	Forb	Annual
HAAC	Haplopappus acaulis	Stemless goldenweed	Mat-form	Perennial
HEAN	Helianthus annuus	Annual sunflower	Forb	Annual
HYAC	Hymenoxys acaulis	Stemless hymenoxys	Mat-form	Perennial
JUOS	Juniperus osteosperma	Utah juniper	Tree	Perennial
JUSC	Juniperus scopulorum	Rockymountain juniper	Tree	Perennial
KOCR	Koeleria cristata	Prairie junegrass	Grass	Perennial
LASC	Lactuca scariola	Prickly lettuce	Forb	Annual
LARE	Lappula redowskii	Bluebur stickseed	Forb	Annual
LATE	Lappula texana	Stickseed	Forb	Annual
LEDE	Lepidium densiflorum	Prairie pepperweed	Forb	Annual
LEPE	Lepidium perfoliatum	Clasping pepperweed	Forb	Annual
LEPU	Leptodactylon pungens	Granite gilia	Half-shrub	Perennial
LILE	Linum lewisii	Lewis flax	Forb	Perennial
MACA	Machaeranthera canescens	Hoary tansyaster	Forb	Perennial
MAGL	Machaeranthera glabriuscula	Alkali woodyaster	Half-shrub	Perennial
MAGR	Machaeranthera grindeloides	Pinnate woodyaster	Half-shrub	Perennial
MATA	Machaeranthera tanecetifolius	Tansyleaf aster	Forb	Annual
MAVI	Mammillaria vivipara	Purple mammillaria	Forb	Perennial
MECI	Mertensia ciliata	Mountain bluebell	Forb	Perennial
MOPE	Monarda pectinata	Pony beebalm	Forb	Perennial
MONU	Monolepis nuttalliana	Nuttall monolepis	Forb	Annual
MUSQ	Munroa squarrosa	False buffalograss	Grass	Annual
MUDI	Musineon divaricatum	Leafy musineon	Forb	Perennial
OPPO	Opuntia polyacantha	Plains pricklypear	Forb	Perennial
ORFA	Orobanche fasciculata	Tufted broomrape	Sapprophyte	Perennial
ORHY	Oryzopsis hymenoides	Indian ricegrass	Grass	Perennial
PECL	Penstemon cleburnei	Cleyburn penstemon	Forb	Perennial
PEFR	Penstemon fremonti	Fremont penstemon	Forb	Perennial
PHHO	Phlox hoodii	Hood's phlox	Mat-form	Perennial
PHLO	Phlox longifolia	Longleaf phlox	Forb	Perennial
PHMU	Phlox multiflora	Flowery phlox	Mat-form	Perennial
PHAU	Physaria australis	Twinpod	Forb	Perennial
PLPA	Plantago patagonica	Wooly Indianwheat	Forb	Annual
POAM	Poa ampla	Big bluegrass	Grass	Perennial
POFE	Poa fendleriana	Mutton bluegrass	Grass	Perennial
POSE	Poa secunda	Sandberg bluegrass	Grass	Perennial
POAV	Polygonum aviculare	Prostrate knotweed	Forb	Annual
POL	Polygonum spp.	Knotweed, smartweed	Forb	Perennial
PSTE	Psoralea tenuiflora	Slimflower scurfpea	Forb	Perennial

TABLE II. (continued)

Code	Genus-Species	Common Name	Life Form	Longevity
SAKA	Salsola kali	Russian thistle	Forb	Perennial
SAVE	Sarcobatus vermiculatus	Greasewood	Shrub	Perennial
SELA	Sedum lanceolatum	Lanceleaf stonecrop	Forb	Perennial
SEST	Sedum stenopetalum	Wormleaf stonecrop	Forb	Perennial
SEDE	Selaginella densa	Spikemoss selaginella	Clubmoss	Perennial
SIHY	Sitanion hystrix	Squirreltail bottlebrush	Grass	Perennial
SIAL	Sisymbrium altissimum	Tumblemustard	Forb	Annual
SILI	Sisymbrium linifolium	Tumblemustard	Forb	Annual
SPCO	Sphaeralcea coccinea	Scarlet globemallow	Forb	Perennial
SPAI	Sporobolus airoides	Alkali sacaton	Grass	Perennial
SPCR	Sporobolus cryptandrus	Sand dropseed	Grass	Perennial
STCO	Stipa comata	Needleandthread	Grass	Perennial
STVI	Stipa viridula	Green needlegrass	Grass	Perennial
SYOC	Symphoricarpos occidentalis	Western snowberry	Shrub	Perennial
TECA	Tetradymia canescens	Gray horsebrush	Shrub	Perennial
TESP	Tetradymia spinosa	Cottonthorn horsebrush	Shrub	Perennial
TRI	Trifolium spp.	Clover	Forb	Perennial
UNK	Unknown			
VIAM	Vicia americana	American vetch	Forb	Perennial
VINU	Viola nuttallii	Nuttall violet	Forb	Perennial
VIO	Violaceae	Violet family	Forb	Perennial
VUOC	Vulpia octoflora	Common sixweeksgrass	Grass	Annual
XASA	Xanthocephalum sarothrae	Broom snakeweed	Half-shrub	Perennial

TABLE III. Utilization occuring prior to clipping

Exclosure	Treatment	Species	%Utilization	Production lbs/acre
Cochran	Out spray	AGSM	2.0	.57
		STCO	13.0	.15
				.72
Cumberland #1	In native	AGSM	.8	.03
	Out native	AGSM	12.9	2.01
		POFE	9.0	.07
		POSE	5.0	.02
				2.10
	In spray	AGSM	1.0	.25
	Out spray	AGSM	.9	.14
Cumberland #2	Out spray	AGSM	21.5	5.45
Cumberland #3	Out native	STCO	15.3	.03
Cumberland #4	In native	SIHY	27.8	1.38
Farson	Out native	AGSM	3.2	.15
Granit Mtn.	Out native	AGSM	2.0	.29
		POFE	.6	.03
				.32
	Out spray	AGSM	20.6	2.13
		POFE	8.3	.26
				2.39
Horse Creek	Out AGSM	AGSM	38.8	10.31
	Out AGSP	AGSM	18.0	.57
		AGSP	27.2	1.16
				1.73
	Out ARNO	AGSP	39.4	3.48

TABLE III. (continued)

Exclosure	Treatment	Species	% Utilization	Production lbs/acre
Lander Ant	In native	AGSM	3.5	.07
	Out native	AGSM	3.6	1.48
		ORHY	12.7	.34
				1.82
Lower Gov't Draw	In native	AGSM	.2	.02
		STCO	8.2	.33
				.35
	Out native	AGSM	12.2	.61
		KOCR	26.3	.12
		STCO	1.2	.02
				.75
	Out spray	AGSM	47.4	13.90
		POSE	3.7	.06
		STCO	16.6	.18
				14.14
McGraw Flats	Out native	POFE	.8	.06
Mesa Antelope	Out native	AGSM	10.6	.91
Shoshoni Ant #2	In south	AGSM	2.8	.07
		ORHY	.8	<.01
				.07
	Out native	AGSM	14.9	.51
		ORHY	28.1	.28
				.86
Shoshoni Ant #4	In north	AGSM	42.3	.16
	In south	AGSM	39.0	.56
Shoshoni Ant #7	In north	AGSM	42.9	1.89
	In south	AGSM	35.3	.34
	Out native	AGSM	.6	.03

TABLE III. (continued)

Exclosure	Treatment	Species	% Utilization	Production lbs/acre
Shoshoni Ant #8	In south	AGSM	15.1	.35
		ORHY	1.6	.04
				.39
	Out native	AGSM	21.5	2.01
		ORHY	29.2	.64
				2.65
Shoshoni Ant #9	In north	AGSM	6.6	.25
	In south	AGSM	5.8	.21
	Out native	AGSM	17.2	.25
Shoshoni Ant #11	In south	AGSM	4.7	.15
Sweetwater	In ARTR	CAEL	6.1	.35
Two Mile Hill	Out native	POSE	1.6	.08
		SIHY	16.6	.25
		Ann Grass	2.3	4.00
				4.33
Upper Gov't Draw	Out native	AGSM	2.1	.17
		POSE	1.5	.05
				.22
	Out spray	KOCR	5.4	.13
West Pasture	Out native	ORHY	3.1	.33

TABLE IV. Vegetation cover data, precipitation and herbage production data alphabetically by exclosure, grazing treatment and shrub control treatment.

		Page
Big Trails GRI	Exclosure	382
Boysen	"	384
Bud Kimball	"	386
Buffalo Creek	"	390
Burnt Wagon	"	392
Cochran	"	394
Cumberland #1	"	398
Cumberland #2	"	402
Cumberland #3	"	406
Cumberland #4	"	410
Demer	"	412
Dutch Nick	"	414
Farson	"	416
Granit Mountain	"	418
Halogeton #1	"	422
Halogeton #2	"	423
Halogeton #3	"	424
Horse Creek	"	426
Kane Deer	"	432
Kane GRI	"	436
Kirby Creek	"	438
Lander Ant	"	440
Lower Gov't Draw	"	442
McGraw Flats	"	446
Medicine Lodge GRI	"	448
Mesa Antelope	"	450
North Butte Relic		452
Round Top Relic		453
Sand Gulch	"	454
Shoshoni Ant #2	"	456
Shoshoni Ant #4	"	459
Shoshoni Ant #7	"	462
Shoshoni Ant #8	"	465
Shoshoni Ant #9	"	468
Shoshoni Ant #11	"	471
Smilo	"	474
Sweetwater	"	478
Two Mile Hill	"	482
Upper Gov't Draw	"	484
West Pasture	"	488

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12 07   NOV 02  RUN1LCA...
           2017   BIG    TRAILS        JULY   28/78  INSIDE SPRAY

                        NUMBER PLOTS = 20
                          PLOT SIZE 1X1
PLANT  PLANT  TOTAL AVE.   PERCENT  ABS.   TOTAL  AVE.   WGT./  LBS
CODE   NAME   TRANS PER-   COMPO-   PLOT   WGT.   WGT.   UNIT   PER
              BASAL CENT   SITION   FREQ.  GMS/20 /PLOT  BASAL  AC.
              AREA  BASAL           BASE   SQ.FT. OCCUR- AREA
              PER-  AREA            20            RENCES
              CENT

   ANN GRASS  56.20  2.81             19    66.93   3.52  1.19 321.38
  5   BRTE    55.80 2.79E+00 8.99E+01 19
  5   VUOC     0.40 2.00E-02 6.44E-01  2
   ANN FORBS   5.90  0.29             13    20.43   1.57  3.46  98.10
  4   DEPI     0.90 4.50E-02 1.45E+00  6
  4   LARE     0.20 T        3.22E-01  1
  4   LASC     0.50 2.50E-02 8.05E-01  4
  4   PLPA     0.40 2.00E-02 6.44E-01  3
  4   POAV     2.40 1.20E-01 3.86E+00 13
  4   SIAL     1.50 7.50E-02 2.42E+00  3
     TOTAL          3.19    100.00         8.7360E+01           4.1948E+02

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

No shrub data collected

```
PRECIPITATION DATA
 RAIN GUAGE NO.      BIG    TRAILS        JULY   28/78
OCT. 15 TO APR. 15 = 4.58
APR. 15 TO JULY 1  =10.67
JULY 1 TO SEPT. 1  = 1.67
SEPT. 1 TO OCT. 15 = 1.44
SEASON TOTAL       =18.36
LONG TERM AVERAGE  =13.42
```

No utilization

```
          2017   BIG    TRAILS G.R.I. JULY    28/78  OUTSID NATIVE

                           NUMBER PLOTS = 20
                              PLOT SIZE 1X1
PLANT  PLANT   TOTAL  AVE.    PERCENT  ABS.    TOTAL   AVE.   WGT./  LBS
CODE   NAME    TRANS  PER-    COMPO-   PLOT    WGT.    WGT.   UNIT   PER
               BASAL  CENT    SITION   FREQ.   GMS/20  /PLOT  BASAL  AC.
               AREA   BASAL            BASE    SQ.FT.  OCCUR- AREA
               PER-   AREA             20              RENCES
               CENT

 6   *ARTR     21.00 1.05E+00             2
  PER GRASS     5.70  0.28                3     3.74    1.25   0.66  17.96
 3    AGSP      1.70 8.50E-02 4.21E+00    1     2.17    2.17   1.28  1.0420E+01
 3    POSE      2.10 1.05E-01 5.20E+00    3     0.38    0.13   0.18  1.8246E+00
 3    STCO      1.90 9.50E-02 4.70E+00    2     1.19    0.59   0.63  5.7140E+00
  PER FORBS     1.90  0.09               15     1.74    0.12   0.92   8.35
 2    POL       1.90 9.50E-02 4.70E+00   15
  ANN GRASS    30.30  1.51               19    28.64    1.51   0.95 137.52
 5    BRTE     30.00 1.50E+00 7.43E+01   19
 5    VUOC      0.30 1.50E-02 7.43E-01    2
  ANN FORBS     2.50  0.12               10     1.92    0.19   0.77   9.22
 4    CRY       0.40 2.00E-02 9.90E-01    3
 4    CHE       0.20 T        4.95E-01    1
 4    DEPI      1.20 6.00E-02 2.97E+00   10
 4    LARE      0.50 2.50E-02 1.24E+00    4
 4    PLPA      0.10 T        2.48E-01    1
 4    SYAL      0.10 T        2.48E-01    1
    TOTAL            3.07     100.00            3.6040E+01           1.7305E+02

        * NOT COMPLTED IN PERCENT COMPOSITION
        T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

No Shrub Data Collected

```
PRECIPITATION DATA
 RAIN GUAGE NO.        BIG    TRAILS G.R.I. JULY    28/78
OCT. 15 TO APR. 15 =   4.58
APR. 15 TO JULY 1  =  10.67
JULY 1 TO SEPT. 1  =   1.67
SEPT. 1 TO OCT. 15 =   1.44
SEASON TOTAL       =  18.36
LONG TERM AVERAGE  =  13.42
```

No Utilization

```
        1002   BOYSEN EXCL           JULY   24/78  INSIDE NATIVE

                              NUMBER PLOTS = 20
                                 PLOT SIZE 1X1
PLANT   PLANT    TOTAL    AVE.     PERCENT   ABS.     TOTAL    AVE.     WGT./    LBS
CODE    NAME     TRANS    PER-     COMPO-    PLOT     WGT.     WGT.     UNIT     PER
                 BASAL    CENT     SITION    FREQ.    GMS/20   /PLOT    BASAL    AC.
                 AREA     BASAL              BASE     SQ.FT.   OCCUR-   AREA
                 PER-     AREA               20                RENCES
                 CENT

  PER GRASS      152.60   7.63               19        33.04     1.74    0.22  158.65
 3    BOGR       151.30 7.56E+00 9.59E+01  19        31.89     1.68    0.21   1.5313E+02
 3    SPAI         1.30 6.50E-02 8.24E-01   1         1.15     1.15    0.88   5.5219E+00
  PER FORBS        5.00   0.25               12         6.83     0.57    1.37   32.80
 2    SPCC         5.00 2.50E-01 3.17E+00  12
  ANN FORBS        0.10   0.00                1         0.01     0.01    0.10    0.05
 4    LATE         0.10 T         6.34E-02   1
     TOTAL                7.88     100.00            3.9880E+01                1.9149E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Atco .19

Oppo 7.31

Shrub Production 7.50

Total Production 198.99

```
PRECIPITATION DATA
 RAIN GUAGE NO.          BOYSEN EXCL           JULY   24/78
OCT. 15 TO APR. 15 =    1.34
APR. 15 TO JULY 1  =    1.97
JULY 1 TO SEPT. 1  =    1.75
SEPT. 1 TO OCT. 15 =     .97
SEASON TOTAL       =    6.03
LONG TERM AVERAGE  =    5.04
```

No Utilization

```
          1002    BOYSEN EXCL          JULY    24/78  OUTSID NATIVE

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1

PLANT   PLANT    TOTAL   AVE.     PERCENT    ABS.   TOTAL    AVE.     WGT./   LBS
CODE    NAME     TRANS   PER-     COMPO-     PLOT   WGT.     WGT.     UNIT    PER
                 BASAL   CENT     SITION     FREQ.  GMS/20   /PLOT    BASAL   AC.
                 AREA    BASAL               BASE   SQ.FT.   OCCUR-   AREA
                 PER-    AREA                20              RENCES
                 CENT

  6    *OPPO      7.50 3.75E-01                2
  1    ATGA       0.10 T          7.40E-02     1       0.01     0.01   0.10   4.8017E-02
   PER GRASS    133.10  6.65                  19      28.82     1.52   0.22  138.38
  3    BOGR     133.10 6.65E+00  9.84E+01     19      28.82     1.52   0.22   1.3838E+02
   PER FORBS      1.90  0.09                   6       1.94     0.32   1.02     9.32
  2    ASCH       0.70 3.50E-02  5.18E-01      6
  2    SPCC       1.20 6.00E-02  8.88E-01      6
   ANN FORBS      0.10  0.00                   1       0.01     0.01   0.10     0.05
  4    HAGL       0.10 T          7.40E-02     1
     TOTAL              7.13     100.00            3.0780E+01                1.4780E+02

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
                                   Arsp                                   .19
                                   Oppo                                  8.23
                                                   Shrub Production      8.42
                                                   Total Production    156.22


PRECIPITATION DATA
 RAIN GUAGE NO.         BOYSEN EXCL          JULY    24/78
OCT. 15 TO APR. 15 =   1.34
APR. 15 TO JULY 1  =   1.97
JULY 1 TO SEPT. 1  =   1.75
SEPT. 1 TO OCT. 15 =    .97
SEASON TOTAL       =   6.03
LONG TERM AVERAGE  =   5.04
```

No Utilization

2007 BUD KIMBAL EXCL JULY 11/78 INSIDE NATIVE

NUMBER PLOTS = 20
PLOT SIZE 1X1

PLANT CODE	PLANT NAME	TOTAL TRANS BASAL AREA PER-CENT	AVE. PER-CENT BASAL AREA	PERCENT COMPO-SITION	ABS. PLOT FREQ. BASE 20	TOTAL WGT. GMS/20 SQ.FT.	AVE. WGT. /PLOT OCCUR-RENCES	WGT./ UNIT BASAL AREA	LBS PER AC.
6	*ARTR	251.80	1.26E+01		18				
6	*OPPO	14.50	7.25E-01		4				
6	*PHHO	11.20	5.60E-01		7				
	PER GRASS	42.00	2.10		19	42.51	2.24	1.01	204.12
3	AGSM	12.90	6.45E-01	2.60E+01	19	29.00	1.53	2.25	1.3925E+02
3	POSE	28.40	1.42E+00	5.73E+01	17	11.69	0.69	0.41	5.6132E+01
3	SIHY	0.70	3.50E-02	1.41E+00	2	1.82	0.91	2.60	8.7391E+00
	PER FORBS	2.30	0.11		5	6.65	1.33	2.89	31.93
2	CAAN	0.70	3.50E-02	1.41E+00	3				
2	ERPU	1.40	7.00E-02	2.82E+00	5				
2	MUDI	0.20	T	4.03E-01	1				
	ANN GRASS	1.00	0.05		4	0.51	0.13	0.51	2.45
5	BRTE	0.50	2.50E-02	1.01E+00	3				
5	VUOC	0.50	2.50E-02	1.01E+00	4				
	ANN FORBS	4.30	0.21		10	2.98	0.30	0.69	14.31
4	DEPI	0.50	2.50E-02	1.01E+00	5				
4	LARE	0.60	3.00E-02	1.21E+00	4				
4	LEDE	0.80	4.00E-02	1.61E+00	6				
4	PLPA	1.30	6.50E-02	2.62E+00	10				
4	UNK1	0.50	2.50E-02	1.01E+00	3				
4	UNK2	0.60	3.00E-02	1.21E+00	5				
	TOTAL		16.35	100.00		5.2650E+01			2.5281E+02

* NOT COMPLTED IN PERCENT COMPOSITION

T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr	137.09
Oppo	29.09
Phho	7.30
Shrub Production	172.48
Total Production	425.29

PRECIPITATION DATA

RAIN GUAGE NO. BUD KIMBAL EXCL JULY 11/78

OCT. 15 TO APR. 15 = E2.50
APR. 15 TO JULY 1 = E6.80
JULY 1 TO SEPT. 1 = E1.51
SEPT. 1 TO OCT. 15 = .87
SEASON TOTAL = E11.68
LONG TERM AVERAGE = 9.52

No Utilization

```
          2007   BUD    KIMBAL EXCL   JULY   11/78  OUTSID NATIVE

                             NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT  PLANT   TOTAL  AVE.   PERCENT  ABS.   TOTAL  AVE.   WGT./  LBS
CODE   NAME    TRANS  PER-   COMPO-   PLOT   WGT.   WGT.   UNIT   PER
               BASAL  CENT   SITION   FREQ.  GMS/20 /PLOT  BASAL  AC.
               AREA   BASAL           BASE   SQ.FT. OCCUR- AREA
               PER-   AREA            20            RENCES
               CENT

  6   *ARTR    102.60 5.13E+00          13
  6   *OPPO      4.00 2.00E-01           2
  6   *PHHO     11.90 5.95E-01           8
   PER GRASS    73.40  3.67             16     36.45   2.28   0.50 175.02
  3    AGSM     12.00 6.00E-01 1.48E+01 16     24.47   1.53   2.04   1.1750E+02
  3    AGSP      0.10 T        1.23E-01  1      0.10   0.10   1.00   4.8017E-01
  3    POSE     59.40 2.97E+00 7.32E+01 14      8.77   0.63   0.15   4.2111E+01
  3    SIHY      1.90 9.50E-02 2.34E+00  3      3.11   1.04   1.64   1.4933E+01
   PER FORBS     0.30  0.01              1      0.23   0.23   0.77    1.10
  2    ERPU      0.20 T        2.47E-01  1
  2    MUDI      0.10 T        1.23E-01  1
   ANN GRASS     3.90  0.19             11      2.87   0.26   0.74   13.78
  5    BRTE      0.10 T        1.23E-01  1
  5    VUOC      3.80 1.90E-01 4.69E+00 11
   ANN FORBS     3.50  0.17             14      3.97   0.28   1.13   19.06
  4    DEPI      0.10 T        1.23E-01  1
  4    LEDE      0.50 2.50E-02 6.17E-01  5
  4    PLPA      2.10 1.05E-01 2.59E+00 14
  4    UNK#1     0.10 T        1.23E-01  1
  4    UNK#2     0.70 3.50E-02 8.63E-01  7
     TOTAL              9.98    100.00         4.3520E+01           2.0897E+02

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr	268.32
Oppo	7.00
Phho	8.74
Shrub Production	284.06
Total Prodcution	493.03

```
PRECIPITATION DATA
 RAIN GUAGE NO.         BUD    KIMBAL EXCL    JULY    11/78
OCT. 15 TO APR. 15 =    E2.50
APR. 15 TO JULY 1  =    E6.80
JULY 1 TO SEPT. 1  =    E1.51
SEPT. 1 TO OCT. 15 =      .87
SEASON TOTAL       =   E11.68
LONG TERM AVERAGE  =     9.52
```

No Utilization

```
          2007    BUD     KIMBAL EXCL    JULY    11/78  INSIDE SPRAY

                               NUMBER PLOTS = 20
                                 PLOT SIZE 1X1
PLANT  PLANT    TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE   NAME     TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA              20              RENCES
                CENT

 6    *ARTR     42.50 2.12E+00             14

 6    *PHHO      0.30 1.50E-02              1
  PER GRASS     47.80  2.39                17      77.65    4.57   1.62 372.85

 3    AGSM      10.00 5.00E-01 1.39E+01 17      41.78    2.46   4.18   2.0061E+02
 3    BOGR       1.00 5.00E-02 1.39E+00  2       2.42    1.21   2.42   1.1620E+01
 3    POSE      21.10 1.05E+00 2.92E+01 10       7.70    0.77   0.36   3.6973E+01

 3    STCO      15.70 7.85E-01 2.17E+01  8      25.75    3.22   1.64   1.2364E+02
  PER FORBS      0.30  0.01                 1       0.42    0.42   1.40    2.02
 2    ERPU       0.30 1.50E-02 4.16E-01  1

  ANN GRASS     21.20  1.06                18      33.75    1.87   1.59 162.06
 5    BRTE      20.80 1.04E+00 2.88E+01 18
 5    VUOC       0.40 2.00E-02 5.54E-01  3

  ANN FORBS      2.90  0.14                 9       1.88    0.21   0.65    9.03
 4     CHDE      0.20 T        2.77E-01  1
 4    LARE       0.40 2.00E-02 5.54E-01  3
 4    LEDE       0.20 1.00E-02 2.77E-01  2
 4    PLPA       0.90 4.50E-02 1.25E+00  6
 4    UNK+2      1.20 6.00E-02 1.66E+00  9
    TOTAL             5.75     100.00         1.1370E+02             5.4595E+02

     * NOT COMPUTED IN PERCENT COMPOSITION
     T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr		31.25
Oppo		11.43
Phho		.24
	Shrub Production	42.92
	Total Production	588.87

```
PRECIPITATION DATA
 RAIN GUAGE NO.        BUD     KIMBAL EXCL    JULY    11/78
OCT. 15 TO APR. 15 =    E2.50
APR. 15 TO JULY 1  =    E6.80
JULY 1 TO SEPT. 1  =    E1.51
SEPT. 1 TO OCT. 15 =      .87
SEASON TOTAL       =   E11.68
LONG TERM AVERAGE  =     9.52
```

No Utilization

```
          2007    BUD    KIMBAL EXCL    JULY    11/78  OUTSID SPRAY

                              NUMBER PLCTS = 20
                                PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.     PERCENT  ABS.    TOTAL   AVE.     WGT./   LBS
CODE    NAME    TRANS   PER-     CCMPC-   PLCT    WGT.    WGT.     UNIT    PER

                BASAL   CENT     SITICN   FREQ.   GMS/20  /PLOT    BASAL   AC.
                AREA    BASAL             BASE    SQ.FT.  OCCUR-   AREA
                PER-    AREA              20              RENCES
                CENT

  6    *ARTR    42.70 2.13E+00              5

  6    *OPPO     4.00 2.00E-01              2
  6    *PHHO     9.00 4.50E-01              4
   PER GRASS    35.40  1.77                16      66.74    4.17   1.89 320.46
  3     AGSM    17.40 8.70E-01 1.89E+01    16      50.57    3.16   2.91   2.4282E+02

  3     AGSP     6.00 3.00E-01 6.53E+00     2      12.66    6.33   2.11   6.0789E+01
  3     POSE    12.00 6.00E-01 1.31E+01    12       3.51    0.29   0.29   1.6854E+01
   PER FORBS     0.10  0.00                 1       0.01    0.01   0.10    0.05
  2     ERPL     0.10 T        1.09E-01     1
   ANN GRASS    28.40  1.42                17      12.54    0.74   0.44   60.21
  5     BRTE     0.30 1.50E-02 3.26E-01     2

  5     VUOC    28.10 1.40E+00 3.06E+01    17
   ANN FORBS    28.00  1.40                17      27.52    1.62   0.98 132.14
  4     DEPI     0.10 T        1.09E-01     1
  4     LEDE     1.00 5.00E-02 1.09E+00     9
  4     PLPA    26.10 1.30E+00 2.84E+01    17
  4     UNK#2    0.80 4.00E-02 8.71E-01     6
     TOTAL            7.38     100.00           1.0681E+02                5.1287E+02

      * NOT COMPLTED IN PERCENT CCMPCSITICN
      T - TRACE

PRODUCTION ESTIMATES CF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr		36.53
Oppo		27.16
	Shrub Production	63.69
	Total Production	576.56

```
PRECIPITATION DATA
 RAIN GUAGE NO.        BUD    KIMBAL EXCL    JULY    11/78
CCT. 15 TC APR. 15 =    E2.50
APR. 15 TC JULY 1  =    E6.80

JULY 1 TO SEPT. 1  =    E1.51
SEPT. 1 TC OCT. 15 =      .87
SEASON TOTAL       =   E11.68
LCNG TERM AVERAGE  =     9.52
```

No Utilization

```
11 22    APR 11   RUNYMUA...
            2002    BUFFAL CREEK  EXCL    JULY    11/78  INSIDE NATIVE

                                   NUMBER PLOTS = 20
                                     PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA              20              RENCES
                CENT

  6    *ARTR   203.20 1.02E+01              15
  6    *PHHO    20.20 1.01E+00              17
  6    *OPPU     4.90 2.45E-01               3
   PER GRASS    83.20  4.16                 17      83.90     4.94    1.01  402.86
  3    AGSM      7.10 3.55E-01 7.79E+00    15      13.47     0.90    1.90  6.4679E+01
  3    AGSP     51.90 2.59E+00 5.69E+01    17      64.11     3.77    1.24  3.0784E+02
  3    BUGR      1.10 5.50E-02 1.21E+00     1       0.46     0.46    0.42  2.2088E+00
  3    POSE     23.10 1.15E+00 2.53E+01    17       5.86     0.34    0.25  2.8138E+01
   PER FORBS     5.80  0.29                  3       7.06     2.35    1.22  33.90
  2    ASMO      1.30 6.50E-02 1.43E+00     3
  2    CALI      1.00 5.00E-02 1.10E+00     1
  2    PECL      3.10 1.55E-01 3.40E+00     3
  2    SPCO      0.40 2.00E-02 4.39E-01     2
   ANN GRASS     0.20  0.01                  1       0.10     0.10    0.50   0.48
  5    BRTE      0.20 T        2.19E-01     1
   ANN FORBS     2.00  0.10                  7       0.50     0.07    0.25   2.40
  4    DEPI      0.80 4.00E-02 8.77E-01     6
  4    LEDE      0.80 4.00E-02 8.77E-01     7
  4    PLPA      0.40 2.00E-02 4.39E-01     4
     TOTAL           15.97     100.00            9.1560E+01              4.3964E+02

       * NOT COMPLTED IN PERCENT COMPOSITION
       T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr	122.45
Eula	.19
Oppo	5.36
Phho	2.74
Shrub Production	130.74
Total Production	570.38

```
PRECIPITATION DATA
 RAIN GUAGE NO.         BUFFAL CREEK  EXCL    JULY    11/78
OCT. 15 TO APR. 15 =   E3.00
APR. 15 TO JULY 1  =   E5.10
JULY 1 TO SEPT. 1  =    1.53
SEPT. 1 TO OCT. 15 =     .85
SEASON TOTAL       =  E10.48
LONG TERM AVERAGE  =   10.70
```

No Utilization

2002 BUFFAL CREEK EXCL JULY 11/78 OUT NATIVE

NUMBER PLOTS = 20
PLOT SIZE 1X1

PLANT CODE	PLANT NAME	TOTAL TRANS BASAL AREA PER-CENT	AVE. PER-CENT BASAL AREA	PERCENT COMPOSITION	ABS. PLOT FREQ. BASE 20	TOTAL WGT. GMS/20 SQ.FT.	AVE. WGT. /PLOT OCCUR-RENCES	WGT./ UNIT BASAL AREA	LBS PER AC.
6	*ARTR	245.00	1.22E+01		16				
6	*OPPO	13.10	6.55E-01		4				
6	*PHHO	6.00	3.00E-01		1				
PER GRASS		63.70	3.18		18	42.26	2.35	0.66	202.92
3	AGSM	12.30	6.15E-01	1.71E+01	18	18.54	1.03	1.51	8.9023E+01
3	AGSP	8.30	4.15E-01	1.16E+01	5	14.67	2.93	1.77	7.0441E+01
3	BOGR	4.30	2.15E-01	5.99E+00	5	1.35	0.27	0.31	6.4823E+00
3	POSE	38.80	1.94E+00	5.40E+01	16	7.70	0.48	0.20	3.6973E+01
PER FORBS		1.90	0.09		2	2.65	1.32	1.39	12.72
2	ALTE	0.10	T	1.39E-01	1				
2	ANRO	0.70	3.50E-02	9.75E-01	1				
2	ARCO	0.20	1.00E-02	2.79E-01	2				
2	CANU	0.10	T	1.39E-01	1				
2	ERPU	0.40	2.00E-02	5.57E-01	1				
2	MACA	0.10	T	1.39E-01	1				
2	PECL	0.20	T	2.79E-01	1				
2	SPCO	0.10	T	1.39E-01	1				
ANN GRASS		2.30	0.11		10	1.53	0.15	0.67	7.35
5	BRTE	2.20	1.10E-01	3.06E+00	10				
5	VUOC	0.10	T	1.39E-01	1				
ANN FORBS		3.90	0.19		15	7.30	0.49	1.87	35.05
4	DEPI	0.10	T	1.39E-01	1				
4	LEDE	0.40	2.00E-02	5.57E-01	4				
4	PLPA	3.20	1.60E-01	4.46E+00	15				
4	SILI	0.20	1.00E-02	2.79E-01	2				
	TOTAL		16.79	100.00		5.3740E+01			2.5804E+02

* NOT COMPUTED IN PERCENT COMPOSITION
T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr	147.98
Eri	.02
Eula -Cela	.29
Oppo	7.41
Phho	5.23
Shrub Production	160.93
Total Production	418.97

PRECIPITATION DATA
RAIN GUAGE NO. BUFFAL CREEK EXCL JULY 11/78
OCT. 15 TO APR. 15 = E3.00
APR. 15 TO JULY 1 = E5.10
JULY 1 TO SEPT. 1 = 1.53
SEPT. 1 TO OCT. 15 = .85
SEASON TOTAL = E10.48
LONG TERM AVERAGE = 10.70

No Utilization

```
13 31    APR 18  RUN1AGA...
          2003   BURNT  WAGON        JULY   06/78  INSIDE NATIVE

                      NUMBER OF PLOTS
                COVER = 200, PRODUCTION = 20
                 PLOT SIZE 1 FT. X 10 FT.
PLANT  PLANT TOTAL  AVE.   PERCENT  ABS.    TOTAL   AVE.   WGT./   LBS
CODE   NAME  TRANS  PER-   COMPO-   PLOT    WGT.    WGT.   UNIT    PER
             BASAL  CENT   SITION   FREQ.   GMS/    /PLOT  BASAL   AC.
             AREA   BASAL           BASE    200     OCCUR- AREA
             PER-   AREA            200     SQ.FT.  RENCES
             CENT

  1 ATGA    2259.7  1.13E+01 9.85E+01131    762.39    5.82   0.34  3.6608E+02
   PER GRASS   1.2  6.00E-03           1      1.00    1.00   0.83  4.8017E-01
  3 SIHY       1.2  T        5.23E-02  1      1.00    1.00   0.83  4.8017E-01
   PER FORBS  18.40  0.09             39     41.54    1.07   2.26  19.95
  2 ALTE       1.6  T        6.97E-02 13
  2 MACA       0.1  T        T         1
  2 MUDI      16.7  8.35E-02 7.28E-01 39
   ANN FORBS  15.30  0.08            107     22.18    0.21   1.45  10.65
  4 GIPU      14.3  7.15E-02 6.23E-01107
  4 LEDE       0.1  T        T         1
  4 POAV       0.9  T        3.92E-02  8
    TOTAL             11.5     100.00      8.27110E+02            3.97153E+02

        * NOT COMPUTED IN PERCENT COMPOSITION
        T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

No Shrub Production

```
PRECIPITATION DATA
 RAIN GUAGE NO.       BURNT  WAGON         JULY   06/78
OCT. 15 TO APR. 15 =   .85
APR. 15 TO JULY 1  =  4.62
JULY 1 TO SEPT. 1  =  1.63
SEPT. 1 TO OCT. 15 =   .97
SEASON TOTAL       =  8.07
LONG TERM AVERAGE  =  6.14
```

No Utilization

```
         2003   BURNT  WAGON  EXCL    JULY   07/78  OUTSID NATIVE

                              NUMBER OF PLOTS
                       COVER = 200, PRODUCTION = 20
                        PLOT SIZE 1 FT. X 10 FT.
PLANT  PLANT   TOTAL  AVE.    PERCENT   ABS.    TOTAL  AVE.    WGT./  LBS
CODE   NAME    TRANS  PER-    COMPO-    PLOT    WGT.   WGT.    UNIT   PER
               BASAL  CENT    SITION    FREQ.   GMS/   /PLOT   BASAL  AC.
               AREA   BASAL             BASE    200    OCCUR-  AREA
               PER-   AREA              200     SQ.FT. RENCES
               CENT

  1  ATGA    1664.3  8.32E+00 9.59E+01104   567.12    5.45  0.34  2.7231E+02
   PER GRASS    1.4  7.00E-03              2     4.73    2.36  3.38  2.2712E+00
  3  SIHY       1.4  T          8.07E-02  2     4.73    2.36  3.38  2.2712E+00
   PER FORBS  63.10  0.32                137   341.74    2.49  5.42 164.09
  2  ALTE      13.3  6.65E-02 7.66E-01  70                -
  2  MUDI      49.8  2.49E-01 2.87E+00137
   ANN FORBS   6.70  0.03                 44     8.65    0.20  1.29   4.15
  4  GIPU       4.6  2.30E-02 2.65E-01  44
  4  POAV       2.1  1.05E-02 1.21E-01  18
     TOTAL           8.7      100.00        9.22240E+02             4.42831E+02

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

No Shrub Production

```
PRECIPITATION DATA
 RAIN GUAGE NO.       BURNT  WAGON  EXCL    JULY   07/78
OCT. 15 TO APR. 15 =  .85
APR. 15 TO JULY 1  = 4.62
JULY 1 TO SEPT. 1  = 1.63
SEPT. 1 TO OCT. 15 =  .97
SEASON TOTAL       = 8.07
LONG TERM AVERAGE  = 6.14
```

No Utilization

```
         1501    COCHRA EXCL           JULY    13/78  INSIDE NATIVE

                           NUMBER PLOTS = 20
                             PLOT  SIZE 1X1
PLANT  PLANT   TOTAL  AVE.     PERCENT  ABS.   TOTAL   AVE.    WGT./  LBS
CODE   NAME    TRANS  PER-     COMPO-   PLOT   WGT.    WGT.    UNIT   PER
               BASAL  CENT     SITION   FREQ.  GMS/20  /PLOT   BASAL  AC.
               AREA   BASAL             BASE   SQ.FT.  OCCUR-  AREA
               PER-   AREA              20             RENCES
               CENT

  6    *ARTR  288.00 1.44E+01              9
  6    *OPPO    9.50 4.75E-01              2
   PER GRASS   49.40  2.47                19      24.75    1.30   0.50 118.84
  3    AGSM     8.30 4.15E-01 1.37E+01   18      12.82    0.71   1.54  6.1558E+01
  3    BOGR     2.20 1.10E-01 3.62E+00    1       0.24    0.24   0.11  1.1524E+00
  3    ELJU     2.00 1.00E-01 3.29E+00    1       3.66    3.66   1.83  1.7574E+01
  3    POSE    36.90 1.84E+00 6.07E+01   19       8.03    0.42   0.22  3.8558E+01
   ANN GRASS    8.30  0.41                14       5.51    0.39   0.66  26.46
  5    BRTE     6.50 3.25E-01 1.07E+01   14
  5    VUOC     1.80 9.00E-02 2.96E+00    9
   ANN FORBS    3.10  0.15                10       0.98    0.10   0.32   4.71
  4    CHE      0.30 1.50E-02 4.93E-01    2
  4    DEPI     1.60 8.00E-02 2.63E+00   10
  4    LEDE     0.40 2.00E-02 6.58E-01    4
  4    PLPA     0.40 2.00E-02 6.58E-01    3
  4    LARE     0.40 2.00E-02 6.58E-01    3
     TOTAL            17.91    100.00          3.1240E+01            1.5000E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr		495.36
Oppo		5.06
	Shrub Production	500.42
	Total Production	650.42

```
PRECIPITATION DATA
 RAIN GUAGE NO.        COCHRA EXCL          JULY    13/78
OCT. 15 TO APR. 15 =    E 2.70
APR. 15 TO JULY 1  =    E11.00
JULY 1 TO SEPT. 1  =      1.71
SEPT. 1 TO OCT. 15 =      1.93
SEASON TOTAL       =    E17.34
LONG TERM AVERAGE  =     10.51
```

No Utilization

1501 COCHRA EXCL JULY 13/78 OUTSID NATIVE

NUMBER PLOTS = 20
PLOT SIZE 1X1

PLANT CODE	PLANT NAME	TOTAL TRANS BASAL AREA PER-CENT	AVE. PER-CENT BASAL AREA	PERCENT COMPO-SITION	ABS. PLOT FREQ. BASE 20	TOTAL WGT. GMS/20 SQ.FT.	AVE. WGT. /PLOT OCCUR-RENCES	WGT./ UNIT BASAL AREA	LBS PER AC.
6	*ARTR	111.10	5.55E+00		7				
6	*OPPO	4.00	2.00E-01		1				
6	*PHHO	3.00	1.50E-01		2				
PER GRASS		59.30	2.96		20	77.89	3.89	1.31	374.00
3	AGSM	30.40	1.52E+00	3.93E+01	20	67.47	3.37	2.22	3.2397E+02
3	POSE	27.40	1.37E+00	3.54E+01	18	9.28	0.52	0.34	4.4560E+01
3	SPCR	1.50	7.50E-02	1.94E+00	1	1.14	1.14	0.76	5.4739E+00
PER FORBS		3.20	0.16		5	4.49	0.90	1.40	21.56
2	CRBR	0.50	2.50E-02	6.47E-01	2				
2	ERPU	0.40	2.00E-02	5.17E-01	1				
2	SPCO	2.30	1.15E-01	2.98E+00	5				
ANN GRASS		9.20	0.46		20	10.89	0.54	1.18	52.29
5	BRTE	7.00	3.50E-01	9.06E+00	20				
5	VUOC	2.20	1.10E-01	2.85E+00	11				
ANN FORBS		5.60	0.28		11	8.65	0.79	1.54	41.53
4	CHE	1.30	6.50E-02	1.68E+00	8				
4	DEPI	0.50	2.50E-02	6.47E-01	3				
4	LARE	0.60	3.00E-02	7.76E-01	4				
4	LEDE	1.50	7.50E-02	1.94E+00	11				
4	PLPA	1.50	7.50E-02	1.94E+00	6				
4	SEAL	0.20	T	2.59E-01	1				
	TOTAL		9.77	100.00		1.0192E+02			4.8939E+02

* NOT COMPUTED IN PERCENT COMPOSITION
T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr	463.60
Phho	.91
Oppo	4.90
Shrub Production	469.41
Total Production	958.80

PRECIPITATION DATA

RAIN GUAGE NO. COCHRA EXCL JULY 13/78
OCT. 15 TO APR. 15 = E 2.70
APR. 15 TO JULY 1 = E11.00
JULY 1 TO SEPT. 1 = 1.71
SEPT. 1 TO OCT. 15 = 1.93
SEASON TOTAL = E17.34
LONG TERM AVERAGE = 10.51

No Utilization

```
396
14 12    APR 11   RLNOQUA...
           1501    COCHRA EXCL           JULY    13/78   INSIDE cultivated

                                NUMBER PLOTS = 20
                                  PLOT SIZE 1X1
PLANT   PLANT    TOTAL   AVE.     PERCENT   ABS.     TOTAL   AVE.     WGT./   LBS
CODE    NAME     TRANS   PER-    COMPO-     PLOT     WGT.    WGT.     UNIT    PER
                 BASAL   CENT    SITION     FREQ.    GMS/20  /PLOT    BASAL   AC.
                 AREA    BASAL              BASE     SQ.FT.  OCCUR-   AREA
                 PER-    AREA               20               RENCES
                 CENT

  6    *ARTR    404.80 2.02E+01              15
  6    *OPPO      4.00 2.00E-01               1
  6    *PHHC     10.50 5.25E-01               2
   PER GRASS     41.60  2.08                 18      33.34     1.85    0.80 160.09
  3     AGSM      9.90 4.95E-01 1.92E+01 18      18.07     1.00    1.83  8.6767E+01
  3     AGSP      5.80 2.90E-01 1.13E+01  2       9.41     4.70    1.62  4.5184E+01
  3     BOGR      7.00 3.50E-01 1.36E+01  1       1.61     1.61    0.23  7.7307E+00
  3     POSE     18.90 9.45E-01 3.67E+01 13       4.25     0.33    0.22  2.0407E+01
   PER FORBS      0.20  0.01                  1       0.02     0.02    0.10   0.10
  2     MACA      0.10 T        1.94E-01  1
  2     SPCO      0.10 T        1.94E-01  1
   ANN GRASS      6.20  0.31                 16       4.67     0.29    0.75  22.42
  5     BRTE      4.70 2.35E-01 9.13E+00 16
  5     VUOC      1.50 7.50E-02 2.91E+00  9
   ANN FORBS      3.50  0.17                 10       0.92     0.09    0.26   4.42
  4     CHE       0.10 T        1.94E-01  1
  4     DEPI      2.00 1.00E-01 3.88E+00 10
  4     LARE      0.10 T        1.94E-01  1
  4     LEPE      0.30 1.50E-02 5.83E-01  2
  4     PLPA      1.00 5.00E-02 1.94E+00  4
     TOTAL              23.54    100.00          3.8950E+01              1.8703E+02

       * NOT COMPLTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS


                                 Artr                                        1019.14
                                 Phho                                            .48
                                 Oppo                                           8.63
                                                      Shrub Production       1028.25
                                                      Total Production       1215.28

PRECIPITATION DATA
 RAIN GUAGE NO.          COCHRA EXCL            JULY    13/78
OCT. 15 TO APR. 15 = E 2.70
APR. 15 TO JULY 1  = E11.00
JULY 1 TO SEPT. 1  =   1.71
SEPT. 1 TO OCT. 15 =   1.93
SEASON TOTAL       = E17.34
LONG TERM AVERAGE  =  10.51


      No Utilization
```

```
           1501   COCHRA EXCL          JULY   13/78  OUTSID SPRAY

                              NUMBER PLOTS = 20
                                 PLOT SIZE 1X1
PLANT   PLANT    TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.     WGT./   LBS
CODE    NAME     TRANS   PER-    COMPC-    PLOT    WGT.    WGT.     UNIT    PER
                 BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT    BASAL   AC.
                 AREA    BASAL             BASE    SQ.FT.  OCCUR-   AREA
                 PER-    AREA              20              RENCES
                 CENT

  6    *ARTR    10.00 5.00E-01              1
  6    *OPPO     4.00 2.00E-01              1
   PER GRASS    88.60  4.43                19    120.95     6.37    1.37  580.76
  3    AGSM     33.30 1.66E+00 3.12E+01   19    106.51     5.61    3.20   5.1143E+02
  3    BOGR      7.50 3.75E-01 7.02E+00    3      1.70     0.57    0.23   8.1629E+00
  3    POSE     44.70 2.23E+00 4.19E+01   18     10.20     0.57    0.23   4.8977E+01
  3    STCO      3.10 1.55E-01 2.90E+00    3      2.54     0.85    0.82   1.2196E+01
   ANN GRASS    11.90  0.59                19     14.93     0.79    1.25   71.69
  5    BRTE      7.50 3.75E-01 7.02E+00   19
  5    VUOC      4.40 2.20E-01 4.12E+00   18
   ANN FORBS     6.30  0.31                 9      9.29     1.03    1.47   44.61
  4    CHE       0.60 3.00E-02 5.62E-01    3
  4    DEPI      0.40 2.00E-02 3.75E-01    3
  4    LARE      0.60 3.00E-02 5.62E-01    5
  4    LEDE      1.90 9.50E-02 1.78E+00    9
  4    PLPA      2.70 1.35E-01 2.53E+00    9
  4    UNK2      0.10 T        9.36E-02    1
     TOTAL             6.04    100.00           1.4517E+02               6.9706E+02

        * NOT COMPLTED IN PERCENT COMPOSITION
        T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr		22.13
Oppo		5.91
	Shrub Production	28.04
	Total Production	725.10

```
PRECIPITATION DATA
 RAIN GUAGE NO.         COCHRA EXCL          JULY   13/78
OCT. 15 TO APR. 15 =   E 2.70
APR. 15 TO JULY 1  =   E11.00
JULY 1 TO SEPT. 1  =     1.71
SEPT. 1 TO OCT. 15 =     1.93
SEASON TOTAL       =   E17.34
LONG TERM AVERAGE  =    10.51
```

Utilization	Percent of Total Production
Agsm	.02%
Stco	13%

```
       1901   CUMBER ONE    EXCL   AUGUST 15/78  INSIDE NATIVE

                          NUMBER PLOTS = 20
                            PLOT SIZE 1X1
PLANT  PLANT   TOTAL  AVE.    PERCENT  ABS.   TOTAL    AVE.    WGT./   LBS
CODE   NAME    TRANS  PER-    COMPO-   PLOT   WGT.     WGT.    UNIT    PER
               BASAL  CENT    SITION   FREQ.  GMS/20   /PLOT   BASAL   AC.
               AREA   BASAL            BASE   SQ.FT.   OCCUR-  AREA
               PER-   AREA             20              RENCES
               CENT

  6   *ARTR    58.00 2.90E+00            4
  6   *CHVI    28.50 1.42E+00            4
  6   *SAVE   319.70 1.60E+01            8
  1    ATGA    34.00 1.70E+00 4.10E+01   6     18.79     3.13    0.55   9.0224E+01
   PER GRASS   45.60  2.28              16     34.34     2.15    0.75 164.89
  3    AGSM    19.00 9.50E-01 2.29E+01  16     23.77     1.49    1.25   1.1414E+02
  3    POFE    16.80 8.40E-01 2.02E+01   7      6.45     0.92    0.38   3.0971E+01
  3    POSE     5.80 2.90E-01 6.99E+00   4      1.93     0.48    0.33   9.2673E+00
  3    SIHY     4.00 2.00E-01 4.82E+00   2      2.19     1.09    0.55   1.0516E+01
   ANN FORBS    3.40  0.17               6     11.02     1.84    3.24   52.91
  4    DEPI     0.80 4.00E-02 9.64E-01   5
  4    LARE     0.80 4.00E-02 9.64E-01   2
  4    MONU     1.80 9.00E-02 2.17E+00   6
     TOTAL          24.46     100.00          6.4150E+01                3.0803E+02

       * NOT COMPLTED IN PERCENT COMPOSITION
       T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr	159.94
Chna	.72
Chvi	17.86
Save	63.12
Shrub Production	241.64
Total Production	549.63

```
PRECIPITATION DATA
 RAIN GUAGE NO.        CUMBER ONE    EXCL   AUGUST 15/78
OCT. 15 TO APR. 15 =   -
APR. 15 TO JULY 1  =   -
JULY 1 TO SEPT. 1  =   -
SEPT. 1 TO OCT. 15 =  1.52
SEASON TOTAL       =   -
LONG TERM AVERAGE  =  8.04
```

Utilization	Percent of total Production
Agsm	0.8%

```
         1901   CUMBER ONE    EXCL    AUGUST 15/78  OUTSID NATIVE

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT  PLANT   TOTAL  AVE.   PERCENT  ABS.    TOTAL  AVE.    WGT./  LBS
CODE   NAME    TRANS  PER-   COMPO-   PLOT    WGT.   WGT.    UNIT   PER
               BASAL  CENT   SITION   FREQ.   GMS/20 /PLOT   BASAL  AC.
               AREA   BASAL           BASE    SQ.FT. OCCUR-  AREA
               PER-   AREA            20             RENCES
               CENT

 6   *ARTR    53.00 2.65E+00           3
 6   *CHVI     5.00 2.50E-01           2
 6   *PHHO     6.60 3.30E-01           3
 1    ATGA    27.00 1.35E+00 4.69E+01  3     7.73    2.58   0.29  3.7117E+01
  PER GRASS   27.00  1.35             14    42.69    3.05   1.58 204.98
 3    AGSM    15.00 7.50E-01 2.60E+01 14    32.27    2.30   2.15  1.5495E+02
 3    ORHY     0.60 3.00E-02 1.04E+00  2     0.40    0.20   0.67  1.9207E+00
 3    POFE     2.90 1.45E-01 5.03E+00  5     1.68    0.34   0.58  8.0668E+00
 3    POSE     3.40 1.70E-01 5.90E+00  2     0.77    0.38   0.23  3.6973E+00
 3    SIHY     5.10 2.55E-01 8.85E+00 10     7.57    0.76   1.48  3.6349E+01
  ANN FORBS    3.60  0.18              5    14.73    2.95   4.09  70.73
 4    CHE      0.10 T        1.74E-01  1
 4    DEPI     0.30 1.50E-02 5.21E-01  3
 4    LARE     1.00 5.00E-02 1.74E+00  3
 4    MATA     0.70 3.50E-02 1.22E+00  5
 4    MONU     1.50 7.50E-02 2.60E+00  5
    TOTAL           6.11     100.00        6.5150E+01               3.1283E+02

     * NOT COMPLTED IN PERCENT COMPOSITION
     T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr	127.54
Chvi	14.93
Save	13.20
Tesp	17.91
Shrub Production	173.58
Total Production	486.41

```
PRECIPITATION DATA
 RAIN GUAGE NO.       CUMBER ONE    EXCL    AUGUST 15/78
OCT. 15 TO APR. 15 =   -
APR. 15 TO JULY 1  =   -
JULY 1 TO SEPT. 1  =   -
SEPT. 1 TO OCT. 15 =  1.52
SEASON TOTAL       =   -
LONG TERM AVERAGE  =  8.04
```

Utilization	Percent of Total Production
Agsm	12.9%
Pofe	9.0%
Pose	5.0%

```
           1901   CUMBER ONE     EXCL    AUGUST 15/78  INSIDE SPRAY

                                 NUMBER PLOTS = 20
                                   PLOT SIZE 1X1
PLANT   PLANT    TOTAL   AVE.    PERCENT  ABS.     TOTAL    AVE.     WGT./    LBS
CODE    NAME     TRANS   PER-    COMPO-   PLOT     WGT.     WGT.     UNIT     PER
                 BASAL   CENT    SITION   FREQ.    GMS/20  /PLOT     BASAL    AC.
                 AREA    BASAL            BASE     SC.FT.  OCCUR-    AREA
                 PER-    AREA             20                RENCES
                 CENT

  6    *XASA      4.00 2.00E-01             1
   PER GRASS     67.70  3.38               18     110.63     6.15    1.63  531.21
  3    AGSM      22.70 1.13E+00 2.87E+01 18       62.82     3.49    2.77   3.0164E+02
  3    ORHY       9.60 4.80E-01 1.22E+01  3       18.05     6.02    1.88   8.6671E+01
  3    POFE      20.00 1.00E+00 2.53E+01  4       13.66     3.41    0.68   6.5591E+01
  3    POSE       1.30 6.50E-02 1.65E+00  3        0.91     0.30    0.70   4.3695E+00
  3    SIHY      14.10 7.05E-01 1.78E+01 15       15.19     1.01    1.08   7.2938E+01
   ANN FORBS     11.30  0.56                7       0.00     0.00    0.00    0.00
  4    DEPI       1.20 6.00E-02 1.52E+00  5
  4    LARE       1.80 9.00E-02 2.28E+00  2
  4    MONU       8.30 4.15E-01 1.05E+01  7
     TOTAL              4.15     100.00           1.1063E+02                5.3121E+02

        * NOT COMPUTED IN PERCENT COMPOSITION
        T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr	.77
Chvi	.62
Save	1.68
Shrub Production	3.07
Total Production	534.28

```
PRECIPITATION DATA
 RAIN GUAGE NO.        CUMBER ONE     EXCL    AUGUST 15/78
OCT. 15 TO APR. 15 =  -
APR. 15 TO JULY 1  =  -
JULY 1 TO SEPT. 1  =  -
SEPT. 1 TO OCT. 15 =  1.52
SEASON TOTAL       =  -
LONG TERM AVERAGE  =  8.04
```

Utilization	Percent of Total Production
Agsm	1%

```
      1901    CUMBER ONE     EXCL    AUGUST 15/78  OUTSID SPRAY

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT   PLANT    TOTAL   AVE.     PERCENT    ABS.    TOTAL    AVE.     WGT./   LBS
CODE    NAME     TRANS   PER-     COMPO-     PLOT    WGT.     WGT.     UNIT    PER
                 BASAL   CENT     SITION     FREQ.   GMS/20   /PLOT    BASAL   AC.
                 AREA    BASAL               BASE    SQ.FT.   OCCUR-   AREA
                 PER-    AREA                20               RENCES
                 CENT

 6    *ARHO2      1.30 6.50E-02                 2
 6    *SAVE      41.00 2.05E+00                 4
 6    *XASA       1.00 5.00E-02                 1
 1     ATGA      50.00 2.50E+00 3.20E+01  2    36.21    18.10   0.72  1.7387E+02
  PER GRASS      58.90  2.94                19    47.21     2.48   0.80 226.69
 3     AGSM      25.00 1.25E+00 1.60E+01 19    37.90     1.99   1.52  1.8198E+02
 3     POSE      29.90 1.49E+00 1.92E+01 15     6.14     0.41   0.21  2.9482E+01
 3     SIHY       4.00 2.00E-01 2.56E+00  1     3.17     3.17   0.79  1.5221E+01
  PER FORBS       0.20  0.01                 1     0.10     0.10   0.50   0.48
 2    TRGY        0.20 T        1.28E-01  1
  ANN FORBS      47.00  2.35                20    81.71     4.09   1.74 392.35
 4     CHE        0.10 T        6.41E-02  1
 4     DEPI       1.20 6.00E-02 7.69E-01  5
 4     LARE      19.30 9.65E-01 1.24E+01 16
 4     MONU      26.40 1.32E+00 1.69E+01 20
    TOTAL                9.97    100.00          1.6523E+02              7.9338E+02

       * NOT COMPLTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

No Shrub Production

```
PRECIPITATION DATA
 RAIN GUAGE NO.        CUMBER ONE    EXCL    AUGUST 15/78
OCT. 15 TO APR. 15 =  -
APR. 15 TO JULY 1  =  -
JULY 1 TO SEPT. 1  =  -
SEPT. 1 TO OCT. 15 = 1.52
SEASON TOTAL       =  -
LONG TERM AVERAGE  = 8.04
```

Utilization	Percent of Total Production
Agsm	1%

```
        1201   CUMBER TWO    EXCL    AUGUST 15/78  INSIDE NATIVE

                                 NUMBER PLOTS = 20
                                   PLOT SIZE 1X1
PLANT   PLANT   TOTAL    AVE.    PERCENT   ABS.   TOTAL   AVE.    WGT./  LBS
CODE    NAME    TRANS    PER-    COMPO-    PLOT   WGT.    WGT.    UNIT   PER
                BASAL    CENT    SITION    FREQ.  GMS/20  /PLOT   BASAL  AC.
                AREA     BASAL             BASE   SQ.FT.  OCCUR-  AREA
                PER-     AREA              20             RENCES
                CENT

  6    *ARFO     7.00 3.50E-01               1
  6    * ARLO   80.20 4.01E+00              10
  6    *CHVI    37.60 1.88E+00               9
  6    *ERMI     0.50 2.50E-02               1
  6    *ERSU     2.30 1.15E-01               3
  6    *LEPU     8.00 4.00E-01               1
  6    *PHMU     5.00 2.50E-01               1
   PER GRASS    46.10  2.30                 20     71.69    3.58   1.56 344.23
  3    AGSM     22.60 1.13E+00 4.48E+01 20     37.89    1.89   1.68  1.8194E+02
  3    POFE     22.50 1.12E+00 4.46E+01 13     33.51    2.58   1.49  1.6090E+02
  3    POSE      1.00 5.00E-02 1.98E+00  1      0.29    0.29   0.29  1.3925E+00
   PER FORBS     3.60  0.18                  9      4.55    0.51   1.26  21.85
  2    AGGL      0.20 1.00E-02 3.97E-01  2
  2    COPA      1.30 6.50E-02 2.58E+00  9
  2    MECI      0.50 2.50E-02 9.92E-01  4
  2    PHLO      0.80 4.00E-02 1.59E+00  2
  2    TRI       0.80 4.00E-02 1.59E+00  4
   ANN FORBS     0.70  0.03                  4      2.81    0.70   4.01  13.49
  4    DEPI      0.70 3.50E-02 1.39E+00  4
     TOTAL             9.55     100.00         7.9050E+01                3.7957E+02

      * NOT COMPLTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr -Arlo		50.93
Chvi		15.12
Ermi		3.41
Lepu		1.87
Teca		4.85
	Shrub Production	76.20
	Total Production	455.77

```
PRECIPITATION DATA
 RAIN GUAGE NO.        CUMBER TWO    EXCL    AUGUST 15/78
OCT. 15 TO APR. 15 = -
APR. 15 TO JULY 1  = -
JULY 1 TO SEPT. 1  = -
SEPT. 1 TO OCT. 15 = .90
SEASON TOTAL       = -
LONG TERM AVERAGE  = 9.44
```

No Utilization

```
          1201    CUMBER TWO     EXCL    AUGUST 15/78  OUTSID NATIVE

                                 NUMBER PLOTS = 20
                                    PLOT SIZE 1X1
PLANT   PLANT    TOTAL   AVE.    PERCENT   ABS.     TOTAL    AVE.     WGT./    LBS
CODE    NAME     TRANS   PER-    COMPO-    PLOT     WGT.     WGT.     UNIT     PER
                 BASAL   CENT    SITION    FREQ.    GMS/20   /PLOT    BASAL    AC.
                 AREA    BASAL             BASE     SQ.FT.   OCCUR-   AREA
                 PER-    AREA              20                RENCES
                 CENT

  6    * ARLO   171.20 8.56E+00              12
  6    *CHVI      5.30 2.65E-01               6
  6    *ERMI     22.70 1.13E+00               9
  6    *ERSU      0.10 T                      1
  6    *PHHO      6.60 3.30E-01               4
  6    *TECA     40.00 2.00E+00               1
   PER GRASS     30.80  1.54                 17     39.37     2.32    1.28 189.04
  3     AGSM     12.90 6.45E-01 3.55E+01 17     20.93     1.23    1.62  1.0050E+02
  3     POFE     17.40 8.70E-01 4.79E+01 11     17.80     1.62    1.02  8.5470E+01
  3     POSE      0.30 1.50E-02 8.26E-01  1      0.29     0.29    0.97  1.3925E+00
  3     STCO      0.20 T        5.51E-01  1      0.35     0.35    1.75  1.6806E+00
   PER FORBS      4.30  0.21                  7      9.45     1.35    2.20  45.38
  2     LAC       0.10 T        2.75E-01  1
  2     MATA      1.00 5.00E-02 2.75E+00  7
  2     MECI      1.00 5.00E-02 2.75E+00  5
  2     PHLO      1.60 8.00E-02 4.41E+00  7
  2     TRI       0.30 1.50E-02 8.26E-01  3
  2     UNK1      0.30 1.50E-02 8.26E-01  1
   ANN FORBS      1.20  0.06                  5      1.01     0.20    0.84    4.85
  4     AST       0.40 2.00E-02 1.10E+00  1
  4     DEPI      0.70 3.50E-02 1.93E+00  5
  4     MONU      0.10 T        2.75E-01  1
     TOTAL             14.11    100.00          4.9830E+01                2.3927E+02

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr-Arlo		111.65
Chvi		18.96
Ermi		5.09
Lepu		.62
Phho		2.69
Teca		8.98
	Shurb Production	147.99
	Total Production	387.26

```
PRECIPITATION DATA
 RAIN GUAGE NO.        CUMBER TWO     EXCL    AUGUST 15/78
OCT. 15 TO APR. 15 =  -
APR. 15 TO JULY 1  =  -
JULY 1 TO SEPT. 1  =  -
SEPT. 1 TO OCT. 15 =  .90
SEASON TOTAL       =  -
LONG TERM AVERAGE  = 9.44
```

No Utilization

```
         1201   CUMBER TWO    EXCL   AUGUST 15/78  INSIDE SPRAY

                          NUMBER PLOTS = 20
                            PLOT SIZE 1X1
PLANT  PLANT  TOTAL  AVE.   PERCENT  ABS.    TOTAL  AVE.   WGT./  LBS
CODE   NAME   TRANS  PER-   COMPO-   PLOT    WGT.   WGT.   UNIT   PER
              BASAL  CENT   SITION   FREQ.   GMS/20 /PLOT  BASAL  AC.
              AREA   BASAL           BASE    SQ.FT. OCCUR- AREA
              PER-   AREA            20             RENCES
              CENT

  6   *CHVI     1.90 9.50E-02            2
  6   *LEPU     0.20 T                   1
  6   *TECA     5.00 2.50E-01            1
   PER GRASS   79.50  3.97              20     126.77   6.34   1.59 608.71
  3   AGSM     54.30 2.71E+00 6.50E+01 20      89.77   4.49   1.65  4.3105E+02
  3   POFE     23.10 1.15E+00 2.77E+01 14      36.69   2.62   1.59  1.7617E+02
  3   POSE      2.10 1.05E-01 2.51E+00  4       0.31   0.08   0.15  1.4885E+00
   PER FORBS    3.80  0.19               5       9.92   1.98   2.61  47.63
  2   AGGL      0.90 4.50E-02 1.08E+00  2
  2   LILE      1.90 9.50E-02 2.28E+00  5
  2   PHLC      0.70 3.50E-02 8.38E-01  4
  2   TRI       0.30 1.50E-02 3.59E-01  2
   ANN FORBS    0.20  0.01               2       0.05   0.02   0.25   0.24
  4   DEPI      0.20 1.00E-02 2.40E-01  2
     TOTAL           4.53     100.00         1.3674E+02            6.5658E+02

     * NOT COMPLTED IN PERCENT COMPOSITION
     T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Chvi		17.71
Ermi		.58
Teca		1.06
	Shrub Production	19.35
	Total Production	675.93

```
PRECIPITATION DATA
 RAIN GUAGE NO.        CUMBER TWO    EXCL    AUGUST 15/78
OCT. 15 TO APR. 15 =  -
APR. 15 TO JULY 1  =  -
JULY 1 TO SEPT. 1  =  -
SEPT. 1 TO OCT. 15 =  .90
SEASON TOTAL       =  -
LONG TERM AVERAGE  = 9.44
```

No Utilization

1201 CUMBER EXCL TWO AUGUST 15/78 OUTSID SPRAY

NUMBER PLOTS = 20

PLOT SIZE 1X1

PLANT CODE	PLANT NAME	TOTAL TRANS BASAL AREA PER-CENT	AVE. PER-CENT BASAL AREA	PERCENT COMPO-SITION	ABS. PLOT FREQ. BASE 20	TOTAL WGT. GMS/20 SQ.FT.	AVE. WGT. /PLOT OCCUR-RENCES	WGT./ UNIT BASAL AREA	LBS PER AC.
6	*ARLO	45.00	2.25E+00		2				
6	*CHVI	15.40	7.70E-01		10				
6	*ERMI	0.30	1.50E-02		1				
6	*PHHO	6.40	3.20E-01		3				
	PER GRASS	54.80	2.74		20	62.64	3.13	1.14	300.78
3	AGSM	40.40	2.02E+00	7.03E+01	20	52.62	2.63	1.30	2.5267E+02
3	POFE	1.70	8.50E-02	2.96E+00	3	4.26	1.42	2.51	2.0455E+01
3	POSE	12.30	6.15E-01	2.14E+01	17	5.58	0.33	0.45	2.6793E+01
3	SIHY	0.40	2.00E-02	6.96E-01	1	0.18	0.18	0.45	8.6430E-01
	PER FORBS	2.30	0.11		6	1.78	0.30	0.77	8.55
2	COPA	0.60	3.00E-02	1.04E+00	2				
2	PHLO	1.10	5.50E-02	1.91E+00	6				
2	TRI	0.60	3.00E-02	1.04E+00	4				
	ANN FORBS	0.40	0.02		3	1.76	0.59	4.40	8.45
4	CHE	0.10	T	1.74E-01	1				
4	DEPI	0.30	1.50E-02	5.22E-01	3				
	TOTAL		6.23	100.00		6.6180E+01			3.1778E+02

* NOT COMPLTED IN PERCENT COMPOSITION

T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr-Arlo	6.0
Chvi	29.95
Shrub Production	35.95
Total Production	353.73

PRECIPITATION DATA

RAIN GUAGE NO. CUMBER EXCL TWO AUGUST 15/78

OCT. 15 TO APR. 15 = -
APR. 15 TO JULY 1 = -
JULY 1 TO SEPT. 1 = -
SEPT. 1 TO OCT. 15 = .90
SEASON TOTAL = -
LONG TERM AVERAGE = 9.44

Utilization	Percent of Total Production
Agsm	21.8%

```
        1202   CUMBER THREE   EXCL    AUGUST 16/78   INSIDE NATIVE

                              NUMBER PLOTS = 20
                                 PLOT SIZE 1X1
PLANT   PLANT    TOTAL   AVE.     PERCENT   ABS.     TOTAL   AVE.     WGT./    LBS
CODE    NAME     TRANS   PER-     COMPO-    PLOT     WGT.    WGT.     UNIT     PER
                 BASAL   CENT     SITION    FREQ.    GMS/20  /PLOT    BASAL    AC.
                 AREA    BASAL              BASE     SQ.FT.  OCCUP-   AREA
                 PER-    AREA               20               RENCES
                 CENT

  6    *ARTR    286.30 1.43E+01             10
  6    *CHVI     15.60 7.80E-01              8
  6    *ERMI      2.50 1.25E-01              1
  6    *PHHO     23.70 1.18E+00             10
   PER GRASS     42.20  2.11                18        53.11     2.95    1.26  255.02
  3     AGSM     13.80 6.90E-01 2.70E+01    18        28.30     1.57    2.05   1.3589E+02
  3     AGSP      3.00 1.50E-01 5.86E+00     2         3.57     1.78    1.19   1.7142E+01
  3     POAM     10.50 5.25E-01 2.05E+01     4        11.19     2.80    1.07   5.3731E+01
  3     POFE     11.90 5.95E-01 2.32E+01     9         9.62     1.07    0.81   4.6192E+01
  3     POSE      3.00 1.50E-01 5.86E+00     4         0.43     0.11    0.14   2.0647E+00
   PER FORBS      8.10  0.40                15        24.90     1.66    3.07  119.56
  2     ASDI      0.10 T        1.95E-01     1
  2     MATA      3.50 1.75E-01 6.84E+00     9
  2     PHLO      3.50 1.75E-01 6.84E+00    15
  2     TRGY      1.00 5.00E-02 1.95E+00     7
   ANN FORBS      0.90  0.04                 3         0.50     0.17    0.56     2.40
  4     AST       0.60 3.00E-02 1.17E+00     3
  4     DEPI      0.30 1.50E-02 5.86E-01     2
     TOTAL            18.96     100.00              7.8510E+01                3.7698E+02

        * NOT COMPLTED IN PERCENT COMPOSITION
        T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr		416.64
Chvi		13.63
Ermi		1.92
Phho		8.11
	Shrub Production	440.30
	Total Production	817.28

PRECIPITATION DATA

RAIN GUAGE NO.   CUMBER THREE   EXCL   AUGUST 16/78

OCT. 15 TO APR. 15 = E2.40
APR. 15 TO JULY 1 = E3.25
JULY 1 TO SEPT. 1 = E1.70
SEPT. 1 TO OCT. 15 = 2.70
SEASON TOTAL =E10.05
LONG TERM AVERAGE = 11.04

No Utilization

```
11 04    MAY 07  RUNWFCA...
            1202   CUMBER THREE          AUGUST 16/78  OUTSID NATIVE

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT  ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPC-   PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION   FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL            BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA             20              RENCES
                CENT

  6    *ARTR    226.50 1.13E+01           13
  6    *CHVI     75.30 3.76E+00           14
  6    *ERMI      3.80 1.90E-01            4
  6    *PHHO      7.20 3.60E-01            4
   PER GRASS     32.50   1.62             18    36.40    2.02   1.12  174.78
  3     AGSM     13.90 6.95E-01 3.29E+01  18    19.15    1.06   1.38  9.1952E+01
  3     CAFI      0.30 1.50E-02 7.09E-01   1     0.07    0.07   0.23  3.3612E-01
  3     POAM      1.80 9.00E-02 4.26E+00   1     2.08    2.08   1.16  9.9875E+00
  3     POFE      5.80 2.90E-01 1.37E+01   6     8.38    1.40   1.44  4.0238E+01
  3     POSE      8.50 4.25E-01 2.01E+01   6     5.35    0.89   0.63  2.5689E+01
  3     SIHY      0.40 2.00E-02 9.46E-01   1     0.38    0.38   0.95  1.8246E+00
  3     STCO      0.80 4.00E-02 1.89E+00   1     0.39    0.39   0.49  1.8727E+00
  3     STVI      1.00 5.00E-02 2.36E+00   1     0.60    0.60   0.60  2.8810E+00
   PER FORBS      8.70   0.43             12    16.05    1.34   1.84  77.07
  2     ASDI      0.20 T        4.73E-01   1
  2     MATA      3.00 1.50E-01 7.09E+00  12
  2     PHLO      4.50 2.25E-01 1.06E+01  11
  2     TRGY      1.00 5.00E-02 2.36E+00   6
   ANN FORBS      1.10   0.05              7     1.39    0.20   1.26   6.67
  4     DEPI      1.10 5.50E-02 2.60E+00   7
     TOTAL             17.75    100.00          5.3840E+01              2.5852E+02

        * NOT COMPUTED IN PERCENT COMPOSITION
        T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr	469.78
Chvi	19.49
Ermi	3.50
Phho	5.66
Teca	3.17
Shrub Production	501.60
Total Production	760.12

```
PRECIPITATION DATA
 RAIN GUAGE NO.      CUMBER THREE          AUGUST 16/78
OCT. 15 TO APR. 15 = E2.40
APR. 15 TO JULY 1  = E3.25
JULY 1 TO SEPT. 1  = E1.70
SEPT. 1 TO OCT. 15 =  2.70
SEASON TOTAL       = E10.05
LONG TERM AVERAGE  =  11.04
```

Utilization	Percent of Total Production
Stco	15.3%

```
17 51    APR 11   RUNYUUA...
           1202    CUMBER THREE   EXCL    AUGUST 16/78   INSIDE SPRAY

                               NUMBER PLOTS = 20
                                 PLOT SIZE 1X1
PLANT   PLANT    TOTAL   AVE.    PERCENT   ABS.     TOTAL   AVE.     WGT./   LBS
CODE    NAME     TRANS   PER-    COMPO-    PLOT     WGT.    WGT.     UNIT    PER
                 BASAL   CENT    SITION    FREQ.    GMS/20  /PLOT    BASAL   AC.
                 AREA    BASAL             BASE     SQ.FT.  OCCUR-   AREA
                 PER-    AREA              20               RENCES
                 CENT

  6    *CHVI     65.00 3.25E+00              6
  6    *ERMI      3.00 1.50E-01              1
   PER GRASS     76.50  3.82                16     133.05    8.32   1.74 638.87
  3    AGSM      24.30 1.21E+00 2.97E+01 16     63.39    3.96   2.61  3.0438E+02
  3    AGSP      23.70 1.18E+00 2.90E+01  6     35.71    5.95   1.51  1.7147E+02
  3    POAM       1.30 6.50E-02 1.59E+00  1      0.92    0.92   0.71  4.4176E+00
  3    POFE      25.20 1.26E+00 3.08E+01 10     32.43    3.24   1.29  1.5572E+02
  3    POSE       2.00 1.00E-01 2.45E+00  2      0.60    0.30   0.30  2.8810E+00
   PER FORBS      4.60  0.23                16      8.82    0.55   1.92  42.35
  2    ASDI       0.30 1.50E-02 3.67E-01  2
  2    PHLO       4.10 2.05E-01 5.02E+00 16
  2    TRGY       0.20 T        2.45E-01  1
   ANN FORBS      0.60  0.03                 3      0.85    0.28   1.42   4.08
  4    DEPI       0.40 2.00E-02 4.90E-01  3
  4    LARE       0.20 T        2.45E-01  1
     TOTAL              7.48     100.00            1.4272E+02              6.8530E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
                             Amal                                         1.78
                             Artr                                         1.30
                             Chvi                                        66.34
                             Ermi                                         5.04
                             Phho                                          .24
                             Teca                                         3.84
                                                 Shrub Production        78.54
PRECIPITATION DATA                               Total Production       763.84
 RAIN GUAGE NO.        CUMBER THREE   EXCL    AUGUST 16/78
OCT. 15 TO APR. 15  =E2.40
APR. 15 TO JULY 1   =E3.25
JULY 1 TO SEPT. 1   =E1.70
SEPT. 1 TO OCT. 15  = 2.70
SEASON TOTAL        E10.05
LONG TERM AVERAGE   =11.04


           No Utilization
```

```
15 33    APR 12  RUNBHVA...
           1202    CUMBER THREE  EXCL    AUGUST 16/78  OUTSID SPRAY

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA              20              RENCES
                CENT

  6   *ARTR    38.80 1.94E+00              5
  6   *CHVI    71.50 3.57E+00              7
  6   *ERMI     7.80 3.90E-01              3
  6   *PHHO     3.50 1.75E-01              2
  6   *SYCL     8.50 4.25E-01              2
  6   *TECA     0.50 2.50E-02              1
   PER GRASS   49.30  2.46                20    70.44    3.52   1.43  338.23
  3    AGSM    35.40 1.77E+00 6.60E+01    20    52.83    2.64   1.49  2.5367E+02
  3    AGSP     2.00 1.00E-01 3.73E+00     3     5.38    1.79   2.69  2.5833E+01
  3    POAM     1.00 5.00E-02 1.87E+00     1     3.18    3.18   3.18  1.5269E+01
  3    POFE     4.50 2.25E-01 8.40E+00     7     4.08    0.58   0.91  1.9591E+01
  3    POSE     2.10 1.05E-01 3.92E+00     3     0.42    0.14   0.20  2.0167E+00
  3    STCC     4.30 2.15E-01 8.02E+00     4     4.55    1.14   1.06  2.1848E+01
   PER FORBS    4.00  0.20                 6    14.54    2.42   3.63  69.82
  2    ASDI     0.10 T        1.87E-01     1
  2    MATA     1.80 9.00E-02 3.36E+00     5
  2    PHLC     1.30 6.50E-02 2.43E+00     6
  2    TRGY     0.80 4.00E-02 1.49E+00     6
   ANN GRASS    0.30  0.01                 1     0.60    0.60   2.00   2.88
  5    BRTE     0.30 1.50E-02 5.60E-01     1
     TOTAL           9.21     100.00          8.5580E+01              4.1093E+02

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr	53.14
Chvi	34.13
Ermi	7.06
Phho	2.16
Teca	1.97
Shrub Production	98.46
Total Production	509.39

```
PRECIPITATION DATA
 RAIN GUAGE NO.        CUMBER THREE  EXCL    AUGUST 16/78
OCT. 15 TO APR. 15 = E2.40
APR. 15 TO JULY 1  = E3.25
JULY 1 TO SEPT. 1  = E1.70
SEPT. 1 TO OCT. 15 =  2.70
SEASON TOTAL       = E10.05
LONG TERM AVERAGE  =  11.04
```

No Utilization

```
        1902   CUMBER FOUR   EXCL   AUGUST 15/78  INSIDE NATIVE

                           NUMBER PLCTS = 20
                             PLCT SIZE 1X1
PLANT  PLANT  TOTAL  AVE.   PERCENT  ABS.   TOTAL  AVE.   WGT./  LBS
CODE   NAME   TRANS  PER-   CCMPC-   PLCT   WGT.   WGT.   UNIT   PER
              BASAL  CENT   SITICN   FREQ.  GMS/20 /PLOT  BASAL  AC.
              AREA   BASAL           BASE   SQ.FT. OCCUR- AREA
              PER-   AREA            20            RENCES
              CENT

  6   *ARSP     0.30 1.50E-02            3
  6   *TESP    32.00 1.60E+00            3
  1   ATGA    170.50 8.52E+00 9.27E+01   5     62.91  12.58  0.37  3.C207E+02
  PER GRASS    11.30  0.56              16     15.22   C.95  1.35  73.C8
  3   AGSM      3.10 1.55E-01 1.68E+00   2      4.65   2.32  1.50  2.2328E+C1
  3   CRHY      0.20 T        1.09E-01   1      0.20   C.20  1.00  9.6C34E-01
  3   SIHY      8.00 4.00E-01 4.35E+00  16     10.37   C.65  1.30  4.9794E+01
  ANN FCRBS     2.20  0.11               3     18.12   6.04  8.24  87.01
  4   DEPI      1.30 6.50E-02 7.07E-01   3
  4   LARE      C.30 1.50E-02 1.63E-01   1
  4   MONU      0.60 3.00E-02 3.26E-01   3
    TCTAL           10.81    100.00          9.6250E+01            4.6216E+C2

      * NCT CCMPUTED IN PERCENT CCMPOSITION
      T - TRACE
```

PRODUCTICN ESTIMATES CF SHRUBS AND WOODY MAT FORM PLANTS

Arsp	0.19
Eula	0.67
Teca	4.37
Shrub Production	5.23
Total Production	467.39

```
PRECIPITATICN DATA
 RAIN GUAGE NC.       CUMBER FCUR   EXCL   AUGUST 15/78
CCT. 15 TC APR. 15 =  -
APR. 15 TC JULY 1  =  -
JULY 1 TC SEPT. 1  =  -
SEPT. 1 TO OCT. 15 = 2.65
SEASON TCTAL       =  -
LCNG TERM AVERAGE  = 8.40
```

Utilizatio	Percent of Total Production
Sihy	27.8%

```
17 09   APR 18  RUNVEGA...
            1902   CUMBER FOUR   EXCL   AUGUST 15/78  OUTSID NATIVE

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT  PLANT   TOTAL  AVE.    PERCENT  ABS.    TOTAL  AVE.    WGT./  LBS
CODE   NAME    TRANS  PER-    COMPO-   PLOT    WGT.   WGT.    UNIT   PER
               BASAL  CENT    SITION   FREQ.   GMS/20 /PLOT   BASAL  AC.
               AREA   BASAL            BASE    SQ.FT. OCCUR-  AREA
               PER-   AREA             20             RENCES
               CENT

  6    *ARSP   19.60 9.80E-01            5
  6    *TESP    2.20 1.10E-01            2
  1    ATGA   148.00 7.40E+00 8.87E+01 10     46.95    4.69   0.32  2.2544E+02
   PER GRASS    7.80  0.39             16      6.32    0.39   0.81  30.35
  3    AGSM     0.50 2.50E-02 3.00E-01  3      1.12    0.37   2.24  5.3779E+00
  3    SIHY     7.30 3.65E-01 4.37E+00 16      5.20    0.32   0.71  2.4969E+01
   ANN FORBS   11.10  0.55             15     27.53    1.84   2.48 132.19
  4    DEPI     0.60 3.00E-02 3.59E-01  3
  4    LARE     5.00 2.50E-01 3.00E+00 15
  4    MONU     5.50 2.75E-01 3.30E+00 15
     TOTAL            9.43    100.00          8.0800E+01              3.8798E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Arsp		1.49
Eula		1.15
Teca		11.57
	Shrub Production	14.21
	Total Production	402.19

```
PRECIPITATION DATA
 RAIN GUAGE NO.       CUMBER FOUR   EXCL   AUGUST 15/78
OCT. 15 TO APR. 15 =  -
APR. 15 TO JULY 1  =  -
JULY 1 TO SEPT. 1  =  -
SEPT. 1 TO OCT. 15 = 2.65
SEASON TOTAL       =  -
LONG TERM AVERAGE  = 8.40
```

No Utilization

```
16 23    MAY 07  RUNCOCA...
            2004    DEMER  EXCL             JULY   20/78  INSIDE NATIVE

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT   PLANT    TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE     NAME    TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
                 BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
                 AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
                 PER-    AREA              20              RENCES
                 CENT

  6    *ARTR    170.10 8.50E+00             10
  6    *OPPO     23.00 1.15E+00              4
  PER GRASS      77.40  3.87                16     33.31    2.08   0.43  159.94
  3    AGSM       3.80 1.90E-01 4.62E+00     6      3.85    0.64   1.01   1.8487E+01
  3    BOGR      51.30 2.56E+00 6.24E+01    10     14.37    1.44   0.28   6.9000E+01
  3    POSE      19.30 9.65E-01 2.35E+01    16      5.77    0.36   0.30   2.7706E+01
  3    SIHY       3.00 1.50E-01 3.65E+00     5      9.32    1.86   3.11   4.4752E+01
  ANN GRASS       1.20  0.06                 6      0.79    0.13   0.66    3.79
  5    BRTE       0.90 4.50E-02 1.09E+00     6
  5    VUOC       0.30 1.50E-02 3.65E-01     3
  ANN FORBS       3.60  0.18                 8      5.82    0.73   1.62   27.95
  4    CHE        0.20 1.00E-02 2.43E-01     2
  4    DEPI       0.30 1.50E-02 3.65E-01     3
  4    GIPU       0.20 1.00E-02 2.43E-01     2
  4    LARE       0.60 3.00E-02 7.30E-01     3
  4    LECE       1.00 5.00E-02 1.22E+00     8
  4    PLPA       1.10 5.50E-02 1.34E+00     7
  4    SIAL       0.20 T        2.43E-01     1
     TOTAL             13.76    100.00             3.9920E+01                1.9168E+02

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

          Artr              257.42
          Oppo               50.20
        Shrub Production    307.62
        Total Production    499.30


PRECIPITATION DATA
 RAIN GUAGE NO.        DEMER  EXCL            JULY   20/78
OCT. 15 TO APR. 15 =    E3.79
APR. 15 TO JULY 1  =    E8.84
JULY 1 TO SEPT. 1  =    E1.68
SEPT. 1 TO OCT. 15 =     1.66
SEASON TOTAL       =   E15.97          No utilization
LONG TERM AVERAGE  =     8.52
```

```
           2004   DEMER  EXCL            JULY   20/78  OUTSID NATIVE

                            NUMBER PLOTS = 20
                              PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT  ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-   PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION   FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL            BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA             20              RENCES
                CENT

  5   *ARTR    84.90 4.24E+00             8
  6   *OPPO    18.00 9.00E-01             2
   PER GRASS   65.60  3.28               15     43.11    2.87   0.66 207.00
  3   AGSM     16.50 8.25E-01 2.34E+01 15      24.94    1.66   1.51  1.1975E+02
  3   BOGR     35.70 1.78E+00 5.06E+01 13      15.23    1.17   0.43  7.3130E+01
  3   POSE     13.10 6.55E-01 1.86E+01 15       2.31    0.15   0.18  1.1092E+01
  3   SIHY      0.30 1.50E-02 4.25E-01  1       0.63    0.63   2.10  3.0251E+00
   PER FORBS    0.20  0.01                1       0.11    0.11   0.55   0.53
  2   SPCC      0.20 T        2.83E-01  1
   ANN GRASS    1.20  0.06                6       0.22    0.04   0.18   1.06
  5   BRTE      0.40 2.00E-02 5.67E-01  3
  5   VUCC      0.80 4.00E-02 1.13E+00  6
   ANN FORBS    3.60  0.18               11       2.23    0.20   0.62  10.71
  4   AST       0.60 3.00E-02 8.50E-01  4
  4   CHE       0.20 1.00E-02 2.83E-01  2
  4   DEPI      0.20 1.00E-02 2.83E-01  2
  4   LECE      1.30 6.50E-02 1.84E+00 11
  4   PLPA      1.30 6.50E-02 1.84E+00  9
     TOTAL            8.67    100.00        4.5670E+01              2.1929E+02

        * NOT COMPUTED IN PERCENT COMPOSITION
        T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS


                            ARTR                                    381.70
                            OPPO                                     52.01
                                         Shrub Production           433.71
                                         Total Production           653.00

PRECIPITATION DATA
 RAIN GUAGE NO.          DEMER  EXCL          JULY   20/78
OCT. 15 TO APR. 15 =      E3.79
APR. 15 TO JULY 1  =      E8.84
JULY 1 TO SEPT. 1  =      E1.68
SEPT. 1 TO OCT. 15 =       1.66
SEASON TOTAL       =     E15.97
LONG TERM AVERAGE  =       8.52
```

No Utilization

```
10 16    MAY 07  RUNAECA...
              2005    DUTCH  NICK    EXCL    JULY    20/78  INSIDE NATIVE

                                 NUMBER PLOTS = 20
                                   PLOT SIZE 1X1
PLANT  PLANT   TOTAL  AVE.    PERCENT  ABS.    TOTAL  AVE.    WGT./  LBS
CODE   NAME    TRANS  PER-    COMPO-   PLOT    WGT.   WGT.    UNIT   PER
               BASAL  CENT    SITION   FREQ.   GMS/20 /PLOT   BASAL  AC.
               AREA   BASAL            BASE    SQ.FT. OCCUR-  AREA
               PER-   AREA             20             RENCES
               CENT

  6   *OPPO     77.00 3.85E+00           12
   PER GRASS   210.90 10.54              20     65.99    3.30   0.31 316.86
  3    BOGR    207.50 1.04E+01 9.63E+01  20     57.32    2.87   0.28  2.7523E+02
  3    POSE      3.40 1.70E-01 1.58E+00   4      8.67    2.17   2.55  4.1631E+01
   PER FORBS     1.80  0.09               4      8.36    2.09   4.64  40.14
  2    CRFE      0.70 3.50E-02 3.25E-01   4
  2    MACA      0.10 T        4.64E-02   1
  2    SPCO      1.00 5.00E-02 4.64E-01   2
   ANN FORBS     2.70  0.13               9     18.83    2.09   6.97  90.42
  4    CHE       1.10 5.50E-02 5.11E-01   9
  4    DEPI      0.10 T        4.64E-02   1
  4    GIPU      0.50 2.50E-02 2.32E-01   5
  4    LEDE      0.70 3.50E-02 3.25E-01   6
  4    PLPA      0.30 1.50E-02 1.39E-01   3
     TOTAL           14.62    100.00          9.3180E+01             4.4742E+02

        * NOT COMPUTED IN PERCENT COMPOSITION
        T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

OPPO	49.78
Shrub Production	49.78
Total Production	497.20

```
PRECIPITATION DATA
 RAIN GUAGE NO.        DUTCH  NICK   EXCL   JULY   20/78
OCT. 15 TO APR. 15 =    1.20
APR. 15 TO JULY 1  =    4.94
JULY 1 TO SEPT. 1  =    1.81
SEPT. 1 TO OCT. 15 =     .91
SEASON TOTAL       =    8.86
LONG TERM AVERAGE  =    7.09
```

No Utilization

```
          2005   DUTCH  NICK   EXCL   JULY   20/78  OUTSID NATIVE

                                NUMBER PLOTS = 20
                                  PLOT SIZE 1X1
PLANT  PLANT  TOTAL  AVE.   PERCENT  ABS.   TOTAL  AVE.    WGT./  LBS
CODE   NAME   TRANS  PER-   COMPO-   PLOT   WGT.   WGT.    UNIT   PER
              BASAL  CENT   SITION   FREQ.  GMS/20 /PLOT   BASAL  AC.
              AREA   BASAL           BASE   SQ.FT. OCCUR-  AREA
              PER-   AREA            20            RENCES
              CENT

  6   *OPPO   58.90 2.94E+00           12
   PER GRASS 266.20 13.31              20    90.76    4.54  0.34 435.80
  3    BOGR  265.50 1.33E+01 9.91E+01  20    89.86    4.49  0.34  4.3148E+02
  3    POSE    0.30 1.50E-02 1.12E-01   1     0.01    0.01  0.03  4.8017E-02
  3    SIHY    0.40 2.00E-02 1.49E-01   1     0.89    0.89  2.22  4.2735E+00
   ANN FORBS   1.70  0.08               5     1.66    0.33  0.98   7.97
  4    AST     0.10 T        3.73E-02   1
  4    CHE     0.50 2.50E-02 1.87E-01   5
  4    CRFE    0.20 1.00E-02 7.47E-02   2
  4    GIPU    0.30 1.50E-02 1.12E-01   2
  4    LEDE    0.20 1.00E-02 7.47E-02   2
  4    MATA    0.10 T        3.73E-02   1
  4    PLPA    0.30 1.50E-02 1.12E-01   2
    TOTAL          16.34    100.00          9.2420E+01            4.4377E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

OPPO 45.27

Shrub Production 45.27

Total Production 489.04

```
PRECIPITATION DATA
 RAIN GUAGE NO.        DUTCH  NICK   EXCL   JULY   20/78
CCT. 15 TO APR. 15 =    1.20
APR. 15 TO JULY 1  =    4.94
JULY 1 TO SEPT. 1  =    1.81
SEPT. 1 TO OCT. 15 =     .91
SEASON TOTAL       =    8.86
LONG TERM AVERAGE  =    7.09
```

No Utilization

0404 FARSON EXCL AUGUST 16/78 INSIDE NATIVE

NUMBER PLOTS = 20
PLOT SIZE 1X1

PLANT CODE	PLANT NAME	TOTAL TRANS BASAL AREA PER- CENT	AVE. PER- CENT BASAL AREA	PERCENT COMPO- SITION	ABS. PLOT FREQ. BASE 20	TOTAL WGT. GMS/20 SQ.FT.	AVE. WGT. /PLOT OCCUR- RENCES	WGT./ UNIT BASAL AREA	LBS PER AC.
6	*ARTR	346.30	1.73E+01		13				
6	*CHVI	4.30	2.15E-01		2				
6	*PHHO	17.70	8.85E-01		12				
	PER GRASS	21.60	1.08		18	29.74	1.65	1.38	142.80
3	AGSM	11.30	5.65E-01	4.73E+01	18	14.69	0.82	1.30	7.0537E+01
3	CAEL	3.00	1.50E-01	1.26E+01	8	1.99	0.25	0.66	9.5554E+00
3	ORHY	2.90	1.45E-01	1.21E+01	4	6.08	1.52	2.10	2.9194E+01
3	POSE	2.40	1.20E-01	1.00E+01	3	3.39	1.13	1.41	1.6278E+01
3	SIHY	1.40	7.00E-02	5.86E+00	3	2.63	0.88	1.88	1.2628E+01
3	STCO	0.60	3.00E-02	2.51E+00	1	0.96	0.96	1.60	4.6096E+00
	PER FORBS	0.20	0.01		1	0.00	0.00	0.00	0.00
2	ASPU	0.20	T	8.37E-01	1				
	ANN FORBS	2.10	0.10		10	0.85	0.08	0.40	4.08
4	CHE	1.60	8.00E-02	6.69E+00	10				
4	ERCE	0.50	2.50E-02	2.09E+00	4				
	TOTAL		19.61	100.00		3.0590E+01			1.4688E+02

* NOT COMPUTED IN PERCENT COMPOSITION
T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

ARTR	143.76
ATCO	0.91
CHVI	5.04
EROV	0.82
EULA	0.19
PHHO	32.64
Shrub Production	223.36
Total Production	370.24

PRECIPITATION DATA
RAIN GUAGE NO. FARSON EXCL AUGUST 16/78
OCT. 15 TO APR. 15 = 4.29
APR. 15 TO JULY 1 = 1.72
JULY 1 TO SEPT. 1 = .80
SEPT. 1 TO OCT. 15 = 1.00
SEASON TOTAL = 7.81
LONG TERM AVERAGE = 6.61

No Utilization

```
16 19    MAY 07  RUN5NCA...
            0404    FARSON EXCL             AUGUST 16/78  OUTSID NATIVE

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT   PLANT    TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME     TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
                 BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
                 AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
                 PER-    AREA              20              RENCES
                 CENT

  6    *ARHO     14.00 7.00E-01              3
  6    *ARTR    193.70 9.68E+00             12
  6    *CHVI      3.10 1.55E-01              3
  5    *EROV      2.00 1.00E-01              1
  6    *PHHO     11.30 5.65E-01              7
   PER GRASS     30.30  1.51                18     45.53    2.53    1.50  218.62
  3     AGSM      7.80 3.90E-01 2.22E+01 18      7.49    0.42    0.96   3.5965E+01
  3     CAEL      1.90 9.50E-02 5.41E+00  4      0.72    0.18    0.38   3.4572E+00
  3     CAFI      1.30 6.50E-02 3.70E+00  2      0.32    0.16    0.25   1.5365E+00
  3     ORHY     10.50 5.25E-01 2.99E+01  8     24.04    3.00    2.29   1.1543E+02
  3     POSE      1.70 8.50E-02 4.84E+00  2      1.46    0.73    0.86   7.0105E+00
  3     SIHY      2.90 1.45E-01 8.26E+00  2      4.58    2.29    1.58   2.1992E+01
  3     STCO      4.20 2.10E-01 1.20E+01  5      6.92    1.38    1.65   3.3228E+01
   PER FORBS      1.50  0.07                 6      0.88    0.15    0.59    4.23
  2     ALTE      0.10 T        2.85E-01  1
  2     ERCE      1.40 7.00E-02 3.99E+00  6
   ANN FORBS      3.30  0.16                14      1.89    0.13    0.57    9.08
  4     CHE       3.10 1.55E-01 8.83E+00 14
  4     LARE      0.20 T        5.70E-01  1
    TOTAL              12.96    100.00          4.8300E+01              2.3192E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

ARTR	124.22
ARHO	3.74
ATCO	.53
CHVI	25.87
EROV	.38
PHHO	11.14
OPPO	1.21
Shrub Production	167.09
Total Production	399.01

```
PRECIPITATION DATA
 RAIN GUAGE NO.       FARSON EXCL          AUGUST 16/78
OCT. 15 TO APR. 15 =  4.29
APR. 15 TO JULY 1  =  1.72
JULY 1 TO SEPT. 1  =   .80
SEPT. 1 TO OCT. 15 =  1.00
SEASON TOTAL       =  7.81
LONG TERM AVERAGE  =  6.61
```

Utilization, Percent of Total Production

AGSM	3.2%

```
16 27    MAY 07  RUNJOCA...
           1007    GRANIT MOUNT   EXCL    AUGUST 03/78   INSIDE NATIVE

                               NUMBER PLOTS = 20
                                 PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA              20              RENCES
                CENT

  6    *ARTR   301.00  1.50E+01            11
  6    *CHVI    12.50  6.25E-01             3
  6    *PHHO    10.20  5.10E-01             6
   PER GRASS   107.70   5.38               20     50.51    2.53    0.47  242.53
  3     AGSM    22.10  1.10E+00  1.92E+01  20     21.60    1.08    0.98   1.0372E+02
  3     POFE    80.30  4.01E+00  6.98E+01  19     27.29    1.44    0.34   1.3104E+02
  3     POSE     5.30  2.65E-01  4.60E+00   7      1.62    0.23    0.31   7.7787E+00
   PER FORBS     7.40   0.37               11      6.48    0.59    0.88   31.11
  2     ASMC     5.00  2.50E-01  4.34E+00  11
  2     CAAN     1.00  5.00E-02  8.69E-01   1
  2     CRAC     0.40  2.00E-02  3.48E-01   1
  2     TRLA     1.00  5.00E-02  8.69E-01   6
     TOTAL              21.94    100.00           5.6990E+01               2.7365E+02

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

                                   ARTR                                      175.68
                                   CHVI                                        7.87
                                   PHHO                                       31.54
                                                    Shrub Production         215.09
                                                    Total Production         488.74


PRECIPITATION DATA
 RAIN GUAGE NO.        GRANIT MOUNT   EXCL    AUGUST 03/78
OCT. 15 TO APR. 15 =   2.22
APR. 15 TO JULY 1  =   4.20
JULY 1 TO SEPT. 1  =   1.05
SEPT. 1 TO OCT. 15 =   1.18
SEASON TOTAL       =   8.65
LONG TERM AVERAGE  =   8.81
```

No Utilization

```
        1007   GRANIT MOUNT  EXCL   AUGUST 03/78  OUTSID NATIVE

                         NUMBER PLOTS = 20
                           PLOT SIZE 1X1
PLANT  PLANT  TOTAL  AVE.   PERCENT  ABS.   TOTAL  AVE.   WGT./  LBS
CODE   NAME   TRANS  PER-   COMPO-   PLOT   WGT.   WGT.   UNIT   PER
              BASAL  CENT   SITION   FREQ.  GMS/20 /PLOT  BASAL  AC.
              AREA   BASAL           BASE   SQ.FT. OCCUR- AREA
              PER-   AREA            20            RENCES
              CENT

 5   *ARTR   519.10 2.60E+01           17
 5   *CHVI     1.60 8.00E-02            2
 5   *PHHO    23.30 1.16E+00           10
  PER GRASS   72.60   3.63             18    28.81   1.60   0.40 138.34
 3   AGSM     13.90 6.95E-01 1.76E+01  18    12.83   0.71   0.92  6.1606E+01
 3   KOCR      1.00 5.00E-02 1.26E+00   1     1.08   1.08   1.08  5.1858E+00
 3   POFE     36.60 1.83E+00 4.62E+01  16     9.87   0.62   0.27  4.7393E+01
 3   POSE     21.10 1.05E+00 2.66E+01  16     5.03   0.31   0.24  2.4153E+01
  PER FORBS    6.60   0.33              7     3.04   0.43   0.46  14.60
 2   ASMC      4.90 2.45E-01 6.19E+00   7
 2   ERPU      0.90 4.50E-02 1.14E+00   4
 2   TRLA      0.80 4.00E-02 1.01E+00   6
   TOTAL             31.16    100.00        3.1850E+01              1.5293E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

ARTR		250.42
PHHO		84.10
	Shrub Production	334.52
	Total Production	487.54

```
PRECIPITATION DATA
 RAIN GUAGE NO.         GRANIT MOUNT  EXCL   AUGUST 03/78
OCT. 15 TO APR. 15 = 2.22
APR. 15 TO JULY 1  = 4.20
JULY 1 TO SEPT. 1  = 1.05
SEPT. 1 TO OCT. 15 = 1.18
SEASON TOTAL       = 8.65
LONG TERM AVERAGE  = 8.81
```

Utilization	Percent of Total Production
AGSM	2.0%
POFE	.6%

```
          1007   GRANIT MOUNT  EXCL   AUGUST 03/78  INSIDE SPRAY

                                 NUMBER PLOTS = 20
                                   PLOT SIZE 1X1
PLANT   PLANT   TOTAL  AVE.    PERCENT  ABS.     TOTAL  AVE.    WGT./  LBS
CODE    NAME    TRANS  PER-    COMPO-   PLOT     WGT.   WGT.    UNIT   PER
                BASAL  CENT    SITION   FREQ.    GMS/20 /PLOT   BASAL  AC.
                AREA   BASAL            BASE     SQ.FT. OCCUR-  AREA
                PER-   AREA             20              RENCES
                CENT

 6    *CHVI     25.00 1.25E+00              1
 5    *PHHO      2.00 1.00E-01              1
  PER GRASS   149.50  7.47                 20    116.63    5.83   0.78  560.02
 3    AGSM      47.60 2.38E+00 3.14E+01 20        76.81    3.84   1.61   3.6882E+02
 3    POFE      96.00 4.80E+00 6.33E+01 17        38.95    2.29   0.41   1.8703E+02
 3    POSE       5.90 2.95E-01 3.89E+00  7         0.87    0.12   0.15   4.1775E+00
  PER FORBS      2.20  0.11                 6      0.78    0.13   0.35    3.75
 2    ASMC       1.60 8.00E-02 1.05E+00  6
 2    ERPU       0.50 2.50E-02 3.30E-01  3
 2    TRLA       0.10 T        6.59E-02  1
   TOTAL               8.93    100.00            1.1741E+02             5.6377E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

                                  ARTR                                       197.28
                                  CHVI                                         5.09
                                  PHHO                                          .96
                                          Shrub Production                   203.33
                                          Total Production                   767.10

PRECIPITATION DATA
 RAIN GUAGE NO.         GRANIT MOUNT  EXCL   AUGUST 03/78
OCT. 15 TO APR. 15 =  2.22
APR. 15 TO JULY 1  =  4.20
JULY 1 TO SEPT. 1  =  1.05
SEPT. 1 TO OCT. 15 =  1.18
SEASON TOTAL       =  8.65
LONG TERM AVERAGE  =  8.81
```

No Utilization

```
        1007   GRANIT MOUNT  EXCL   AUGUST 03/78  OUTSID SPRAY

                            NUMBER PLOTS = 20
                              PLOT SIZE 1X1
PLANT   PLANT    TOTAL   AVE.    PERCENT  ABS.    TOTAL   AVE.     WGT./   LBS
CODE    NAME     TRANS   PER-    COMPO-   PLOT    WGT.    WGT.     UNIT    PER
                 BASAL   CENT    SITION   FREQ.   GMS/20  /PLOT    BASAL   AC.
                 AREA    BASAL            BASE    SQ.FT.  OCCUR-   AREA
                 PER-    AREA             20              RENCES
                 CENT

 6    *ARHO      0.80 4.00E-02             1
 5    *ARTR    221.30 1.11E+01             7
 5    *PHHO     47.30 2.36E+00             7
  PER GRASS    103.10  5.15               20     30.73    1.54    0.30 147.56
 3     AGSM     40.00 2.00E+00 3.78E+01 20     21.55    1.08    0.54   1.0348E+02
 3     POFE     41.10 2.05E+00 3.88E+01 13      6.73    0.52    0.16   3.2315E+01
 3     POSE     22.00 1.10E+00 2.08E+01 15      2.45    0.16    0.11   1.1764E+01
  PER FORBS      2.80  0.14                3      0.96    0.32    0.34     4.61
 2     ASMO      2.00 1.00E-01 1.89E+00  3
 2     ERPU      0.60 3.00E-02 5.67E-01  3
 2     TRLA      0.20 1.00E-02 1.89E-01  2
    TOTAL             18.76    100.00          3.1590E+01              1.5217E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

ARTR		137.62
CHVI		30.14
PHHO		58.61
	Shrub Production	226.37
	Total Production	378.54

```
PRECIPITATION DATA
 RAIN GUAGE NO.       GRANIT MOUNT  EXCL    AUGUST 03/78
OCT. 15 TO APR. 15 = 2.22
APR. 15 TO JULY 1  = 4.20
JULY 1 TO SEPT. 1  = 1.05
SEPT. 1 TO OCT. 15 = 1.18
SEASON TOTAL       = 8.65
LONG TERM AVERAGE  = 8.81
```

Utilization: Percent of Total Production

AGSM	20.6%
POFE	8.3%

```
C9 09    MAY 07  RUN6CCA...
           0901    HALOGETON EXCL  1        JULY   05/78  INSIDE NATIVE

                           NUMBER OF PLOTS
                    COVER = 200, PRODUCTION = 20
                     PLOT SIZE 1 FT. X 10 FT.
PLANT  PLANT  TOTAL  AVE.    PERCENT  ABS.    TOTAL  AVE.    WGT./  LBS
CODE   NAME   TRANS  PER-    CCMPO-   PLOT    WGT.   WGT.    UNIT   PER
              BASAL  CENT    SITION   FREQ.   GMS/   /PLOT   BASAL  AC.
              AREA   BASAL            BASE    200    OCCUR-  AREA
              PER-   AREA             200     SQ.FT. RENCES
              CENT

  6  *ARSP     12.1  6.05E-02              8
  6  *ARTR    525.8  2.63E+00             32
  6  *OPPO     25.3  1.26E-01              5
  6  *TESP      0.5  T                     3
  1  ATGA    2670.6  1.34E+01 8.87E+01148    893.70    6.04  0.33  4.2913E+02
   PER GRASS  308.6  1.54E+00            111    683.99    6.16  2.22  3.2843E+02
  3  AGSM       2.0  T        6.64E-02 16      3.72    0.23  1.86  1.7862E+00
  3  POSE      16.7  8.35E-02 5.55E-01  7     14.29    2.04  0.86  6.8616E+00
  3  SIHY     289.9  1.45E+00 9.63E+00111    665.98    6.00  2.30  3.1978E+02
   PER FORBS  11.10  0.06                30     53.53    1.78  4.82  25.70
  2  ALTE       3.9  1.95E-02 1.30E-01 30
  2  MACA       6.9  3.45E-02 2.29E-01 21
  2  VIAM       0.3  T        T         2
   ANN FORBS  21.10  0.11                61     48.47    0.79  2.30  23.27
  4  DEPI       7.0  3.50E-02 2.32E-01 37
  4  LARE       5.7  2.85E-02 1.89E-01 45
  4  LEDE       8.4  4.20E-02 2.79E-01 61
     TOTAL          17.9     100.00          1.67969E+03            8.06536E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS


                              OPPO             36.95
                              Total Shrub      36.95
                              Total Prod.     843.48


PRECIPITATION DATA
 RAIN GUAGE NO.        HALOGETON EXCL  1        JULY    05/78
OCT. 15 TO APR. 15 = 1.36
APR. 15 TO JULY 1  = 3.69
JULY 1 TO SEPT. 1  =  .68
SEPT. 1 TO OCT. 15 = 1.55
SEASON TOTAL       = 7.28
LONG TERM AVERAGE  = 5.44


                              NO UTILIZATION
           0905    HALOGETON EXCL  2        JULY   05/78  INSIDE NATIVE

                               NUMBER OF PLOTS
                        COVER = 200, PRODUCTION = 20
                          PLOT SIZE 1 FT. X 10 FT.
PLANT  PLANT   TOTAL  AVE.   PERCENT  ABS.   TOTAL   AVE.    WGT./  LBS
CODE   NAME    TRANS  PER-   COMPO-   PLOT   WGT.    WGT.    UNIT   PER
               BASAL  CENT   SITION   FREQ.  GMS/    /PLOT   BASAL  AC.
               AREA   BASAL           BASE   200     OCCUR-  AREA
               PER-   AREA            200    SQ.FT.  RENCES
               CENT

 6  *ARSP      1.1  T                     6
 6  *OPPO     37.9  1.39E-01             10
 1  ATGA    2455.4  1.23E+01 8.49E+01143  1125.74    7.87  0.46  5.4055E+02
  PER GRASS  369.5  1.85E+00            172   630.59    3.67  1.71  3.0279E+02
 3  SIHY     369.5  1.85E+00 1.28E+01172   630.59    3.67  1.71  3.0279E+02
  PER FORBS  39.40  0.20                 94    97.99    1.04  2.49  47.05
 2  ALTE      20.3  1.01E-01 7.02E-01 94
 2  MACA      19.1  9.55E-02 6.60E-01 59
  ANN FORBS  29.20  0.15                 75    82.46    1.10  2.82  39.59
 4  DEPI       3.6  1.80E-02 1.24E-01 22
 4  GIPU       6.1  3.05E-02 2.11E-01 44
 4  LARE      15.9  7.95E-02 5.50E-01 75
 4  LEDE       3.3  1.65E-02 1.14E-01 31
 4  POAV       0.3  T        1.04E-02  3
    TOTAL             14.7     100.00       1.93678E+03            9.29982E+02

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

OPPO	49.92
Total Shrub	49.92
Total Prod.	979.90

```
PRECIPITATION DATA
 RAIN GUAGE NO.         HALOGETON EXCL  2       JULY    05/78
OCT. 15 TO APR. 15 =  1.23
APR. 15 TO JULY 1  =  3.50
JULY 1 TO SEPT. 1  =   .74
SEPT. 1 TO OCT. 15 =  1.97
SEASON TOTAL       =  7.44
LONG TERM AVERAGE  =  6.08
```

NO UTILIZATION

0903 HALOGETON EXCL 3 JULY 06/78 INSIDE NATIVE

NUMBER OF PLOTS
COVER = 200, PRODUCTION = 20
PLOT SIZE 1 FT. X 10 FT.

PLANT CODE	PLANT NAME	TOTAL TRANS BASAL AREA PER-CENT	AVE. PER-CENT BASAL AREA	PERCENT COMPO-SITION	ABS. PLOT FREQ. BASE 200	TOTAL WGT. GMS/ 200 SQ.FT.	AVE. WGT. /PLOT OCCUR-RENCES	WGT./ UNIT BASAL AREA	LBS PER AC.
6	*ARSP	34.6	1.73E-01		6				
6	*OPPO	38.8	1.94E-01		6				
1	ATGA	3024.5	1.51E+01	8.33E+01	178	1076.31	6.05	0.36	5.1681E+02
	PER GRASS	554.2	2.77E+00		157	******	6.85	1.94	5.1644E+02
3	AGCR	0.1	T	T	1	3.23	3.23	32.30	1.5509E+00
3	POSE	102.0	5.10E-01	2.81E+00	55	83.93	1.53	0.82	4.0301E+01
3	SIHY	452.1	2.26E+00	1.24E+01	157	988.38	6.30	2.19	4.7459E+02
	PER FORBS	19.10	0.10		70	49.70	0.71	2.60	23.86
2	ALTE	16.0	8.00E-02	4.40E-01	70				
2	MACA	3.1	1.55E-02	8.53E-02	20				
	ANN FORBS	35.00	0.17		67	65.89	0.98	1.88	31.64
4	DEPI	5.8	2.90E-02	1.60E-01	35				
4	GIPU	18.1	9.05E-02	4.98E-01	67				
4	LARE	3.3	1.65E-02	9.08E-02	28				
4	LEDE	7.8	3.90E-02	2.15E-01	58				
	TOTAL		18.5	100.00		2.26744E+03			1.08876E+03

* NOT COMPUTED IN PERCENT COMPOSITION
T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Oppo		37.79
	Shrub Production	37.79
	Total Production	1126.55

PRECIPITATION DATA

RAIN GUAGE NO. HALOGETON EXCL 3 JULY 06/78
OCT. 15 TO APR. 15 = 1.39
APR. 15 TO JULY 1 = 4.09
JULY 1 TO SEPT. 1 = .78
SEPT. 1 TO OCT. 15 = 1.95
SEASON TOTAL = 8.21
LONG TERM AVERAGE = 5.52

No utilization

```
C8 26    MAY 08  RUNUYCA...
           0913   HORSE  CREEK   EXCL    JULY    27/78   INSIDE AGSM

                                 NUMBER PLOTS = 20
                                   PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT   ABS.     TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-    PLOT     WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION    FREQ.    GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL             BASE     SQ.FT.  OCCUR-  AREA
                PER-    AREA              20               RENCES
                CENT

  6   *ARTR   133.00 6.65E+00              6
   PER GRASS   26.50  1.32                20      86.87    4.34   3.28 417.12
  3    AGSM    22.90 1.14E+00 4.41E+01 20      86.12    4.31   3.76  4.1352E+02
  3    POSE     3.60 1.80E-01 6.94E+00  5       0.75    0.15   0.21  3.6013E+00
   ANN GRASS   21.60  1.08                20      42.17    2.11   1.95 202.49
  5    BRTE    21.10 1.05E+00 4.07E+01 20
  5    VUCC     0.50 2.50E-02 9.63E-01  2
   ANN FORBS    3.80  0.19                 9       4.48    0.50   1.18  21.51
  4    CHDE     0.80 4.00E-02 1.54E+00  5
  4    CRY      0.60 3.00E-02 1.16E+00  5
  4    DEPI     1.20 6.00E-02 2.31E+00  9
  4    LARE     1.10 5.50E-02 2.12E+00  9
  4    LECE     0.10 T        1.93E-01  1
     TOTAL            9.24    100.00          1.3352E+02              6.4112E+02

        * NOT COMPUTED IN PERCENT COMPOSITION
        T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

        Artr                            147.12
        Oppo                              5.99
        Phho                              1.10
        Xasa                              7.49
                 Shrub Production       161.70
                 Total Production       802.82
PRECIPITATION DATA
 RAIN GUAGE NO.       HORSE  CREEK   EXCL    JULY    27/78
OCT. 15 TO APR. 15 =   4.69
APR. 15 TO JULY 1  =   4.87
JULY 1 TO SEPT. 1  =   1.65
SEPT. 1 TO OCT. 15 =   2.45
SEASON TOTAL       =  13.66
LONG TERM AVERAGE  =  11.21
```

No utilization

```
           0913   HORSE  CREEK   EXCL    JULY   27/78  OUTSID AGSM

                            NUMBER PLOTS = 20
                              PLOT SIZE 1X1
PLANT  PLANT   TOTAL   AVE.    PERCENT  ABS.    TOTAL  AVE.    WGT./  LBS
CODE   NAME    TRANS   PER-    COMPO-   PLOT    WGT.   WGT.    UNIT   PER
               BASAL   CENT    SITION   FREQ.   GMS/20 /PLOT   BASAL  AC.
               AREA    BASAL            BASE    SQ.FT. OCCUR-  AREA
               PER-    AREA             20             RENCES
               CENT

 6    *ARTR    198.40 9.92E+00            10
 6    *OPPO      5.00 2.50E-01             1
 6    *PHHO      4.20 2.10E-01             3
  PER GRASS     25.90  1.29               20     59.17    2.96   2.28 284.12
 3     AGSM     23.20 1.16E+00 7.14E+01 20     58.98    2.95   2.54  2.8320E+02
 3     POSE      2.70 1.35E-01 8.31E+00  2      0.19    0.09   0.07  9.1232E-01
  PER FORBS      0.20  0.01                1      0.27    0.27   1.35   1.30
 2     VIC       0.20 T        6.15E-01  1
  ANN GRASS      1.10  0.05                4      0.70    0.17   0.64   3.36
 5     BRTE      1.10 5.50E-02 3.38E+00  4
  ANN FORBS      5.30  0.26               13     21.34    1.64   4.03 102.47
 4     CHDE      2.20 1.10E-01 6.77E+00 13
 4     CRY       1.40 7.00E-02 4.31E+00  5
 4     DEPI      0.40 2.00E-02 1.23E+00  3
 4     LARE      0.60 3.00E-02 1.85E+00  6
 4     SAKA      0.70 3.50E-02 2.15E+00  1
     TOTAL            12.00    100.00           8.1480E+01              3.9124E+02

         * NOT COMPUTED IN PERCENT COMPOSITION
         T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr		238.03
Oppo		5.72
Phho		4.85
Xasa		16.32
	Shrub Production	264.92
	Total Production	656.16

```
PRECIPITATION DATA
 RAIN GUAGE NO.        HORSE  CREEK  EXCL    JULY   27/78
OCT. 15 TO APR. 15 = 4.69
APR. 15 TO JULY 1  = 4.87
JULY 1 TO SEPT. 1  = 1.65
SEPT. 1 TO OCT. 15 = 2.45
SEASON TOTAL       =13.66
LONG TERM AVERAGE  =11.21
```

Utilization	Percent of Total Production
AGSM	38.8%

```
          0913   HORSE  CREEK  EXCL   JULY   27/78  INSIDE AGSP

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT  PLANT   TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE   NAME    TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
               BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
               AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
               PER-    AREA              20              RENCES
               CENT

 6    *ARTR    34.00 1.70E+00              4
 6    *OPPO    19.00 9.50E-01              2
 6    *PHHO     1.10 5.50E-02              2
  PER GRASS    57.50  2.87                20     113.47    5.67    1.97 544.85
 3     AGSP    56.10 2.80E+00 9.06E+01 20     113.40    5.67    2.02   5.4451E+02
 3     POSE     1.40 7.00E-02 2.26E+00  2       0.07    0.03    0.05   3.3612E-01
  ANN GRASS     0.10  0.00                 1       0.06    0.06    0.60    0.29
 5     BRTE     0.10 T        1.62E-01  1
  ANN FORBS     4.30  0.21                18       5.05    0.28    1.17   24.25
 4     CHDE     0.40 2.00E-02 6.46E-01  2
 4     DEPI     3.50 1.75E-01 5.65E+00 18
 4     LARE     0.40 2.00E-02 6.46E-01  2
    TOTAL             5.80     100.00         1.1358E+02               5.6938E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
        Artr                                    155.86
        Cela                                      6.29
        Haac                                       .58
        Oppo                                      6.01
        Phho                                      1.68
        Xasa                                     13.10
                     Shrub Production           183.52
PRECIPITATION DATA   Total Production           752.90
 RAIN GUAGE NO.        HORSE  CREEK  EXCL   JULY   27/78
OCT. 15 TO APR. 15 = 4.69
APR. 15 TO JULY 1  = 4.87
JULY 1 TO SEPT. 1  = 1.65
SEPT. 1 TO OCT. 15 = 2.45
SEASON TOTAL       = 13.66
LONG TERM AVERAGE  = 11.21
```

No utilization

```
        0913   HORSE  CREEK  EXCL   JULY   27/78  OUTSID AGSp

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT  PLANT   TOTAL   AVE.    PERCENT   ABS.    TOTAL  AVE.    WGT./   LBS
CODE   NAME    TRANS   PER-    COMPO-    PLOT    WGT.   WGT.    UNIT    PER
               BASAL   CENT    SITION    FREQ.   GMS/20 /PLOT   BASAL   AC.
               AREA    BASAL             BASE    SQ.FT. OCCUR-  AREA
               PER-    AREA              20             RENCES
               CENT

 5   *ARTR    373.50 1.87E+01            15
 6   *OPPO      4.00 2.00E-01             1
 6   *PHHO     15.20 7.60E-01            12
 6   *XASA     32.80 1.64E+00            12
  PER GRASS    18.70  0.93               12      15.65   1.30   0.84   75.15
 3    AGSM      3.50 1.75E-01 1.41E+01    8       6.64   0.83   1.90   3.1883E+01
 3    AGSP     12.10 6.05E-01 4.86E+01   12       8.83   0.74   0.73   4.2399E+01
 3    POSE      3.10 1.55E-01 1.24E+01    6       0.18   0.03   0.06   8.6430E-01
  PER FORBS     3.50  0.17                7       0.00   0.00   0.00    0.00
 2    CANU      0.10 T        4.02E-01    1
 2    HYAC      1.00 5.00E-02 4.02E+00    1
 2    SPCO      0.50 2.50E-02 2.01E+00    2
 2    VIC       1.80 9.00E-02 7.23E+00    7
 2    UNK1      0.10 T        4.02E-01    1
  ANN FORBS     2.70  0.13               11       1.32   0.12   0.49    6.34
 4    CHDE      1.00 5.00E-02 4.02E+00    8
 4    CRY       0.40 2.00E-02 1.61E+00    2
 4    DEPI      1.20 6.00E-02 4.82E+00   11
 4    LARE      0.10 T        4.02E-01    1
    TOTAL             22.52    100.00           1.6970E+01             8.1485E+01

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr		211.78
Oppo		9.67
Phho		30.78
Xasa		203.33
	Shrub Production	455.56
	Total Production	537.04

```
PRECIPITATION DATA
 RAIN GUAGE NO.        HORSE  CREEK  EXCL   JULY   27/78
OCT. 15 TO APR. 15 =  4.69
APR. 15 TO JULY 1  =  4.87
JULY 1 TO SEPT. 1  =  1.65
SEPT. 1 TO OCT. 15 =  2.45
SEASON TOTAL       = 13.66
LONG TERM AVERAGE  = 11.21
```

Utilization	Percent of Total Production
AGSM	18.0%
AGSP	27.2%

```
08 30    MAY 03   RUNWYCA...
            0913   HORSE  CREEK  EXCL   JULY   27/78  INSIDE ARNO

                                   NUMBER PLOTS = 20
                                     PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA              20              RENCES
                CENT

  5    *ARNO    330.00 1.65E+01            12
  5    *OPPO      2.50 1.25E-01             1
  5    *PHHO      5.10 2.55E-01             5
  6    *XASA      6.50 3.25E-01             2
   PER GRASS     20.80  1.04               17     41.00   2.41   1.97 196.87
  3    AGSP      20.80 1.04E+00 9.12E+01 17     41.00   2.41   1.97  1.9687E+02
   PER FORBS      0.20  0.01                1      0.11   0.11   0.55   0.53
  2    ASPU       0.20 T        8.77E-01  1
   ANN FORBS      1.80  0.09               12      2.14   0.18   1.19  10.28
  4    DEPI       1.80 9.00E-02 7.89E+00 12
     TOTAL            18.34    100.00           4.3250E+01           2.0767E+02

        * NOT COMPUTED IN PERCENT COMPOSITION
        T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Arno		216.38
Artr		73.68
Cela		4.75
Oppo		6.51
Phho		4.27
Xasa		22.75
	Shrub Production	328.34
	Total Production	536.01

```
PRECIPITATION DATA
 RAIN GUAGE NO.          HORSE  CREEK  EXCL   JULY   27/78
OCT. 15 TO APR. 15 =  4.69
APR. 15 TO JULY 1  =  4.87
JULY 1 TO SEPT. 1  =  1.65
SEPT. 1 TO OCT. 15 =  2.45
SEASON TOTAL       = 13.66
LONG TERM AVERAGE  = 11.21
```

No utilization

```
08 41    MAY 08  RUNAZCA...
           0913   HORSE  CREEK   EXCL    JULY    27/78  OUTSID ARNO

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA              20              RENCES
                CENT

  6    *ARNO   252.50 1.26E+01            12
  6    *ARTR     8.00 4.00E-01             1
  6    *OPPO    36.50 1.82E+00             5
  6    *PHHO     6.90 3.45E-01             7
  6    *XASA    13.80 6.90E-01             3
   PER GRASS    21.90  1.09               18      18.55    1.03    0.85    89.07
  3    AGSP     20.30 1.01E+00 7.93E+01   18      18.38    1.02    0.91    8.8255E+01
  3    POSE      1.60 8.00E-02 6.25E+00    2       0.17    0.08    0.11    8.1629E-01
   PER FORBS     1.90  0.09                5       3.56    0.71    1.87    17.09
  2    GACC      1.60 8.00E-02 6.25E+00    5
  2    SPCC      0.30 1.50E-02 1.17E+00    3
   ANN FORBS     1.80  0.09                9       2.26    0.25    1.26    10.85
  4    CRY       0.60 3.00E-02 2.34E+00    2
  4    DEPI      1.20 6.00E-02 4.69E+00    9
     TOTAL            17.16    100.00            2.4370E+01                1.1702E+02

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Arno	269.86
Artr	92.59
Oppo	6.79
Phho	11.42
Xasa	24.58
Shrub Production	405.24
Total Production	522.26

```
PRECIPITATION DATA
 RAIN GUAGE NO.          HORSE   CREEK   EXCL    JULY    27/78
OCT. 15 TO APR. 15 =  4.69
APR. 15 TO JULY 1  =  4.87
JULY 1 TO SEPT. 1  =  1.65
SEPT. 1 TO OCT. 15 =  2.45
SEASON TOTAL       = 13.66
LONG TERM AVERAGE  = 11.21
```

Utilization	Percent of Total Production
AGSP	39.4%

```
15 58    OCT 26  RUNEVGA...
            0914   KANE    DEER    EXCL    JULY   26/78  INSIDE NATIVE

                                  NUMBER PLOTS = 20
                                     PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT  ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-   PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION   FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL            BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA             20              RENCES
                CENT

  6    *ARHO      0.80 4.00E-02                1
  6    *ARNO     39.00 1.95E+00                3
  6    *JUOS     90.00 4.50E+00                2
  6    *PHHO      5.10 2.55E-01                5
   PER GRASS     11.40  0.57                  10      11.79    1.18   1.03   56.61
  3     AGGR      9.40 4.70E-01 6.81E+01 10      10.90    1.09   1.16   5.2338E+01
  3     ARFE      1.50 7.50E-02 1.09E+01  1       0.84    0.84   0.56   4.0334E+00
  3     POSE      0.50 2.50E-02 3.62E+00  2       0.05    0.02   0.10   2.4008E-01
   PER FORBS      1.70  0.08                   3       0.87    0.29   0.51    4.18
  2     ERI       1.10 5.50E-02 7.97E+00  3
  2     ERPU      0.20 T        1.45E+00  1
  2     GICO      0.40 2.00E-02 2.90E+00  3
   ANN FORBS      0.70  0.03                   3       0.07    0.02   0.10    0.34
  4     DEPI      0.30 1.50E-02 2.17E+00  1
  4     LARE      0.30 1.50E-02 2.17E+00  3
  4     PHDI      0.10 T        7.25E-01  1
    TOTAL               7.43    100.00          1.2730E+01              6.1126E+01

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS




PRECIPITATION DATA
 RAIN GUAGE NO.         KANE    DEER    EXCL    JULY    26/78
OCT. 15 TO APR. 15 =  3.92
APR. 15 TO JULY 1  =  8.93
JULY 1 TO SEPT. 1  =   .88
SEPT. 1 TO OCT. 15 =  1.96
SEASON TOTAL       = 15.69
LONG TERM AVERAGE  = 12.32
```

No utilization

```
           0914   KANE   DEER   EXCL   JULY   26/78  OJT    NATIVE

                            NUMBER PLOTS = 20
                               PLOT SIZE 1X1
PLANT  PLANT   TOTAL  AVE.   PERCENT  ABS.    TOTAL   AVE.    WGT./   LBS
CODE   NAME    TRANS  PER-   COMPO-   PLOT    WGT.    WGT.    UNIT    PER
               BASAL  CENT   SITION   FREQ.   GMS/20  /PLOT   BASAL   AC.
               AREA   BASAL           BASE    SQ.FT.  OCCUR-  AREA
               PER-   AREA            20              RENCES
               CENT

  6   *ARHO     0.40 2.00E-02            1
  6   *JUOS   292.20 1.46E+01            7
  6   *PHHO     1.30 6.50E-02            2
   PER GRASS    6.30  0.31               8     3.03    0.38   0.48   14.55
  3    AGGR     4.50 2.25E-01 4.21E+01   8     2.74    0.34   0.61   1.3157E+01
  3    POSE     1.80 9.00E-02 1.68E+01   4     0.29    0.07   0.16   1.3925E+00
   PER FORBS    2.90  0.14               5     1.07    0.21   0.37    5.14
  2    ANRO     0.40 2.00E-02 3.74E+00   1
  2    ERI      0.70 3.50E-02 6.54E+00   4
  2    GICO     0.30 1.50E-02 2.80E+00   2
  2    GISP     1.50 7.50E-02 1.40E+01   5
   ANN FORBS    1.50  0.07               6     0.34    0.06   0.23    1.63
  4    CHEN     0.10 T        9.35E-01   1
  4    DEPI     0.90 4.50E-02 8.41E+00   6
  4    LARE     0.50 2.50E-02 4.67E+00   4
     TOTAL          15.23    100.00          4.4400E+00                2.1320E+01

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS




PRECIPITATION DATA
 RAIN GUAGE NO.        KANE   DEER   EXCL   JULY   26/78
OCT. 15 TO APR. 15 =  3.92
APR. 15 TO JULY 1  =  8.93
JULY 1 TO SEPT. 1  =   .88
SEPT. 1 TO OCT. 15 =  1.96
SEASON TOTAL       = 15.69
LONG TERM AVERAGE  = 12.32
```

Utilization	Percent of Total Production
AGGR	1.0%

```
16 32     OCT 26  RUNJVGA...
             0914   KANE   DEER    EXCL    JULY   26/78  INSIDE SPRAY

                                 NUMBER PLOTS = 20
                                    PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT  ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-   PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION   FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL            BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA             20              RENCES
                CENT

  6    *ARFR      0.50 2.50E-02             2
  6    *ARNO     44.00 2.20E+00             4
  6    *PHHO      2.70 1.35E-01             3
  6    *XASA      6.40 3.20E-01             3
   PER GRASS     52.40  2.62               12       56.10     4.67   1.07 269.37
  3    AGGR      45.50 2.27E+00 5.09E+01  12       53.58     4.47   1.18  2.5775E+02
  3    ARFE       4.00 2.00E-01 4.47E+00   1        1.89     1.89   0.47  9.0752E+00
  3    POSE       2.90 1.45E-01 3.24E+00   3        0.53     0.18   0.18  2.5449E+00
   ANN GRASS      0.10  0.00                1        0.01     0.01   0.10    0.05
  5    BRTE       0.10 T        1.12E-01   1
   PER FORBS     35.00  1.75               13       26.38     2.03   0.75 126.67
  2    CRFL       1.10 5.50E-02 1.23E+00   5
  2    ERCO      10.90 5.45E-01 1.22E+01  13
  2    ERI        2.50 1.25E-01 2.80E+00   6
  2    GICO       0.30 1.50E-02 3.36E-01   1
  2    GISP      20.20 1.01E+00 2.26E+01   7
   ANN FORBS      1.90  0.09                7        1.59     0.23   0.84    7.63
  4    DEPI       0.80 4.00E-02 8.95E-01   7
  4    LARE       1.10 5.50E-02 1.23E+00   7
     TOTAL              7.15    100.00            8.4080E+01                4.0373E+02

        * NOT COMPUTED IN PERCENT COMPOSITION
        T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS




PRECIPITATION DATA
 RAIN GUAGE NO.         KANE    DEER    EXCL    JULY    26/78
OCT. 15 TO APR. 15 =  3.92
APR. 15 TO JULY 1  =  8.93
JULY 1 TO SEPT. 1  =   .88
SEPT. 1 TO OCT. 15 =  1.96
SEASON TOTAL       = 15.69
LONG TERM AVERAGE  = 12.32

     No utilization
```

```
          0914   KANE   DEER   EXCL   JULY   26/78  OUT    SPRAY

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT  PLANT   TOTAL  AVE.   PERCENT  ABS.    TOTAL  AVE.    WGT./  LBS
CODE   NAME    TRANS  PER-   COMPO-   PLOT    WGT.   WGT.    UNIT   PER
               BASAL  CENT   SITION   FREQ.   GMS/20 /PLOT   BASAL  AC.
               AREA   BASAL           BASE    SQ.FT. OCCUR-  AREA
               PER-   AREA            20             RENCES
               CENT

  6   *ARHO     1.30 6.50E-02           1
  6   *JUOS    70.00 3.50E+00           2
  6   *PHHO     0.20 T                  1
  6   *XASA    29.80 1.49E+00           5
   PER GRASS    4.30  0.21              3      1.27    0.42  0.30   6.10
  3    AGGR     2.00 1.00E-01 7.97E+00  3      0.94    0.31  0.47  4.5136E+00
  3    POSE     2.30 1.15E-01 9.16E+00  2      0.33    0.16  0.14  1.5846E+00
   PER FORBS   14.60  0.73              4     22.39    5.60  1.53 107.51
  2    ERI      1.10 5.50E-02 4.38E+00  4
  2    GICO     0.30 1.50E-02 1.20E+00  2
  2    GISP     8.30 4.15E-01 3.31E+01  4
  2    MAVI     0.10 T        3.98E-01  1
  2    MEN      4.80 2.40E-01 1.91E+01  4
   ANN FORBS    6.20  0.31             13      3.79    0.29  0.61  18.20
  4    CRY      0.30 1.50E-02 1.20E+00  1
  4    DEPI     1.70 8.50E-02 6.77E+00 13
  4    LASC     0.10 T        3.98E-01  1
  4    LARE     1.70 8.50E-02 5.77E+00  8
  4    UNK1     2.40 1.20E-01 9.56E+00  8
    TOTAL             6.32    100.00          2.7450E+01              1.3181E+02

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS




PRECIPITATION DATA
 RAIN GUAGE NO.         KANE   DEER   EXCL   JULY   26/78
OCT. 15 TO APR. 15 =  3.92
APR. 15 TO JULY 1  =  8.93
JULY 1 TO SEPT. 1  =   .88
SEPT. 1 TO OCT. 15 =  1.96
SEASON TOTAL       = 15.69
LONG TERM AVERAGE  = 12.32
```

No utilization

```
436
16 09   OCT 26  RUNRVGA...
           0921    KANE    G.R.I. EXCL    JULY   26/78  INSIDE SPRAY

                         NUMBER PLOTS = 20
                           PLOT SIZE 1X1
PLANT  PLANT  TOTAL  AVE.   PERCENT  ABS.   TOTAL  AVE.   WGT./  LBS
CODE   NAME   TRANS  PER-   COMPO-   PLOT   WGT.   WGT.   UNIT   PER
              BASAL  CENT   SITION   FREQ.  GMS/20 /PLOT  BASAL  AC.
              AREA   BASAL           BASE   SQ.FT. OCCUR- AREA
              PER-   AREA            20            RENCES
              CENT

  6   *ARNO   15.00 7.50E-01           1
  6   *XASA   12.80 6.40E-01           7
   PER GRASS  60.80   3.04            17     83.71   4.92 1.38 401.95
  3   AGGR    57.20 2.86E+00 7.42E+01 17     83.07   4.89 1.45  3.9888E+02
  3   POSE     3.60 1.80E-01 4.67E+00  4      0.64   0.16 0.18  3.0731E+00
   PER FORBS  12.20   0.61            10     14.51   1.45 1.19  69.67
  2   GICO     7.50 3.75E-01 9.73E+00  9
  2   GISP     3.10 1.55E-01 4.02E+00  4
  2   UNK1     1.60 8.00E-02 2.08E+00  2
   ANN GRASS   0.30   0.01             2      0.07   0.03 0.23   0.34
  5   BRTE     0.30 1.50E-02 3.89E-01  2
   ANN FORBS   3.80   0.19             9      1.50   0.17 0.39   7.20
  4   DEPI     1.00 5.00E-02 1.30E+00  7
  4   LASC     1.30 6.50E-02 1.69E+00  9
  4   PLPA     1.50 7.50E-02 1.95E+00  1
     TOTAL           5.24    100.00         9.9790E+01          4.7916E+02

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

```
PRECIPITATION DATA
 RAIN GUAGE NO.      KANE   G.R.I. EXCL   JULY   26/78
OCT. 15 TO APR. 15 =  4.48
APR. 15 TO JULY 1  =  9.51
JULY 1 TO SEPT. 1  =   .94
SEPT. 1 TO OCT. 15 =  1.99
SEASON TOTAL       = 16.92
LONG TERM AVERAGE  = 13.07
```

No utilization

```
10 56   OCT 29  RUNOHAA...
           0921   KANE   G.R.I. EXCL   JULY   26/78  OUT    NATIVE

                         NUMBER PLOTS = 20
                           PLOT SIZE 1X1
PLANT  PLANT  TOTAL  AVE.   PERCENT  ABS.   TOTAL  AVE.   WGT./  LBS
CODE   NAME   TRANS  PER-   COMPO-   PLOT   WGT.   WGT.   UNIT   PER
              BASAL  CENT   SITION   FREQ.  GMS/20 /PLOT  BASAL  AC.
              AREA   BASAL           BASE   SQ.FT. OCCUR- AREA
              PER-   AREA            20            RENCES
              CENT

  6   *ARHO     4.10 2.05E-01           3
  6   *ARNO   109.00 5.45E+00           7
  6   *ARTR     1.20 6.00E-02           1
  6   *JUOS   305.00 1.53E+01           5
  6   *PHHO     1.90 9.50E-02           3
   PER GRASS    4.10  0.20              5     1.98   0.40  0.48   9.51
  3   AGGR      3.10 1.55E-01 5.17E+01  5     1.93   0.39  0.62  9.2673E+00
  3   POSE      1.00 5.00E-02 1.67E+01  1     0.05   0.05  0.05  2.4008E-01
   PER FORBS    1.50  0.07              2     0.46   0.23  0.31   2.21
  2   GICO      0.40 2.00E-02 6.67E+00  2
  2   GISP      1.00 5.00E-02 1.67E+01  2
  2   UNK1      0.10 T        1.67E+00  1
   ANN FORBS    0.40  0.02              2     0.08   0.04  0.20   0.38
  4   DEPI      0.40 2.00E-02 6.67E+00  2
     TOTAL          21.36    100.00         2.5200E+00           1.2100E+01

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS




PRECIPITATION DATA
 RAIN GUAGE NO.      KANE   G.R.I. EXCL   JULY   26/78
OCT. 15 TO APR. 15 = 4.48
APR. 15 TO JULY 1  = 9.51
JULY 1 TO SEPT. 1  =  .94
SEPT. 1 TO OCT. 15 = 1.99
SEASON TOTAL       = 16.92
LONG TERM AVERAGE  = 13.07
```

No utilization

```
          1502   KIRBY  CREEK  EXCL    JULY    13/78  INSIDE NATIVE

                                 NUMBER PLOTS = 20
                                   PLOT SIZE 1X1
PLANT   PLANT   TOTAL    AVE.     PERCENT  ABS.     TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS    PER-     COMPO-   PLOT     WGT.    WGT.    UNIT    PER
                BASAL    CENT     SITION   FREQ.    GMS/20  /PLOT   BASAL   AC.
                AREA     BASAL             BASE     SQ.FT.  OCCUR-  AREA
                PER-     AREA              20               RENCES
                CENT

  6    *OPPO     8.00 4.00E-01               1
  6    *SAVE    99.10 4.95E+00               5
   PER GRASS    40.90  2.04                 18     164.05    9.11    4.01 787.72
  3    AGSM     34.50 1.72E+00 5.84E+01 18     160.85    8.94    4.66  7.7235E+02
  3    ORHY      0.20 T        3.38E-01  1       0.80    0.80    4.00  3.8414E+00
  3    POSE      6.20 3.10E-01 1.05E+01  8       2.40    0.30    0.39  1.1524E+01
   PER FORBS     0.60  0.03                  1       3.96    3.96    6.60  19.01
  2    VIAM      0.60 3.00E-02 1.02E+00  1
   ANN GRASS     3.50  0.17                 10      10.30    1.03    2.94  49.46
  5    BRTE      3.50 1.75E-01 5.92E+00 10
   ANN FORBS    14.10  0.70                 11      68.67    6.24    4.87 329.73
  4    CAMI      3.40 1.70E-01 5.75E+00  9
  4    CHAL      5.30 2.65E-01 8.97E+00 11
  4    DEPI      0.20 T        3.38E-01  1
  4    HEAN      0.20 T        3.38E-01  1
  4    LARE      0.90 4.50E-02 1.52E+00  3
  4    LEPE      1.40 7.00E-02 2.37E+00 10
  4    MONU      2.60 1.30E-01 4.40E+00  3
  4    POAN      0.10 T        1.69E-01  1
     TOTAL               8.31     100.00        2.4698E+02              1.1859E+03

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

      Oppo                                .41
      Save                               7.06
                 Shrub Production        7.47
                 Total Production     1193.37


PRECIPITATION DATA
 RAIN GUAGE NO.        KIRBY  CREEK  EXCL    JULY    13/78
OCT. 15 TO APR. 15  =  E2.70
APR. 15 TO JULY 1   = E11.00
JULY 1 TO SEPT. 1   =  E2.70
SEPT. 1 TO OCT. 15  =   1.87
SEASON TOTAL        = E18.27
LONG TERM AVERAGE   =   9.69


      No utilization
```

```
          1502    KIRBY  CREEK  EXCL    JULY    13/78  OUTSID SPRAY

                                 NUMBER PLOTS = 20
                                   PLOT SIZE 1X1
PLANT   PLANT    TOTAL    AVE.     PERCENT   ABS.    TOTAL    AVE.     WGT./   LBS
CODE    NAME     TRANS    PER-     COMPO-    PLOT    WGT.     WGT.     UNIT    PER
                 BASAL    CENT     SITION    FREQ.   GMS/20   /PLOT    BASAL   AC.
                 AREA     BASAL              BASE    SQ.FT.   OCCUR-   AREA
                 PER-     AREA               20               RENCES
                 CENT

 6    *SAVE     220.00 1.10E+01               6
  PER GRASS      42.60  2.13                 11       82.95    7.54    1.95  398.30
 3    AGSM       12.30 6.15E-01 2.03E+01     11       50.21    4.56    4.08  2.4109E+02
 3    POSE        7.30 3.65E-01 1.21E+01      4        2.27    0.57    0.31  1.0900E+01
 3    SPAI       23.00 1.15E+00 3.80E+01      3       30.47   10.16    1.32  1.4631E+02
  PER FORBS       0.10  0.00                  1        0.35    0.35    3.50    1.68
 2    SPCC        0.10 T        1.65E-01      1
  ANN GRASS       5.80  0.29                 10       17.89    1.79    3.08   85.90
 5    BRTE        5.70 2.85E-01 9.42E+00     10
 5    MUSC        0.10 T        1.65E-01      1
  ANN FORBS      12.00  0.60                 11       90.86    8.26    7.57  436.28
 4    CAMI        0.30 1.50E-02 4.96E-01      1
 4    CHAL        1.90 9.50E-02 3.14E+00      7
 4    DEPI        0.20 1.00E-02 3.31E-01      2
 4    HEAN        0.20 T        3.31E-01      1
 4    LARE        2.20 1.10E-01 3.64E+00      6
 4    LEPE        1.10 5.50E-02 1.82E+00      3
 4    MONU        5.30 2.65E-01 8.76E+00     11
 4    PLPA        0.10 T        1.65E-01      1
 4    POAV        0.60 3.00E-02 9.92E-01      4
 4    UNK         0.10 T        1.65E-01      1
    TOTAL            14.02    100.00             1.9205E+02               9.2217E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

      Oppo                              1.17
      Save                              9.36
                 Shrub Production      10.53
                 Total Production     932.70

PRECIPITATION DATA
 RAIN GUAGE NO.        KIRBY   CREEK   EXCL    JULY    13/78
OCT. 15 TO APR. 15 =  E2.20
APR. 15 TO JULY 1  = E11.00
JULY 1 TO SEPT. 1  =  E2.70
SEPT. 1 TO OCT. 15 =   1.87
SEASON TOTAL       = E18.27
LONG TERM AVERAGE  =   9.69

      No utilization
```

```
16 30    MAY 07  RUNLOCA...
              1001    LANDER ANT     EXCL    AUGUST 17/78   INSIDE NATIVE

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT   ABS.     TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-    PLOT     WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION    FREQ.    GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL             BASE     SQ.FT.  OCCUR-  AREA
                PER-    AREA              20               RENCES
                CENT

 5    *ARPE      0.50 2.50E-02               1
 5    *ARTR    320.40 1.60E+01              16
 5    *OPPO     16.50 8.25E-01               2
 6    *PHHO      4.30 2.15E-01               3
  PER GRASS     16.40  0.82                 14      10.06     0.69    0.59   48.288
 3     AGSM      5.80 2.90E-01 3.19E+01     14       4.17     0.30    0.72   2.0023E+01
 3     CAEL      0.60 3.00E-02 3.30E+00      3       0.21     0.07    0.35   1.0084E+00
 3     ORHY      6.90 3.45E-01 3.79E+01     13       5.02     0.39    0.73   2.4104E+01
 3     POSE      3.10 1.55E-01 1.70E+01      4        .66     0.06    0.08    3.168
  PER FORBS      1.10  0.05                  4       0.57     0.14    0.52    2.74
 2     ERPU      0.30 1.50E-02 1.65E+00      2
 2     SPCC      0.80 4.00E-02 4.40E+00      4
  ANN FORBS      0.70  0.03                  5       0.08     0.02    0.11    0.38
 4     GIPU      0.10 T        5.49E-01      1
 4     PLPA      0.60 3.00E-02 3.30E+00      5
    TOTAL             17.99    100.00             1.0290E+01                 51.408

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
      Artr                                     280.37
      Oppo                                      24.86
      Phho                                      17.04
                                               ------
                 Shrub Production              322.27
                 Total Production              373.678



PRECIPITATION DATA
 RAIN GUAGE NO.          LANDER ANT     EXCL     AUGUST 17/78
OCT. 15 TO APR. 15 =  1.77
APR. 15 TO JULY 1  =  5.50
JULY 1 TO SEPT. 1  =   .75
SEPT. 1 TO OCT. 15 =  1.45
                      ----
SEASON TOTAL       =  9.47
LONG TERM AVERAGE  =  8.67


       Utilization     Percent of Total Production
          AGSM                   3.5%
          1001   LANDER ANT    EXCL   AUGUST 17/78  OUTSID NATIVE

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT  PLANT   TOTAL   AVE.    PERCENT  ABS.    TOTAL   AVE.    WGT./  LBS
CODE   NAME    TRANS   PER-    COMPO-   PLOT    WGT.    WGT.    UNIT   PER
               BASAL   CENT    SITION   FREQ.   GMS/20  /PLOT   BASAL  AC.
               AREA    BASAL            BASE    SQ.FT.  OCCUR-  AREA
               PER-    AREA             20              RENCES
               CENT

  6    *ARTR   129.50 6.47E+00           13
  6    *OPPO    12.00 6.00E-01            1
  6    *PHHO     1.00 5.00E-02            1
   PER GRASS    78.10  3.90              18     27.76    1.54   0.36 133.29
  3    AGSM      8.40 4.20E-01 1.01E+01 18      8.56    0.48   1.02  4.1102E+01
  3    BOGR     50.40 2.52E+00 6.09E+01  6     10.88    1.81   0.22  5.2242E+01
  3    ORHY      9.90 4.95E-01 1.20E+01  9      5.56    0.62   0.56  2.6697E+01
  3    POSE      9.40 4.70E-01 1.14E+01 17      2.76    0.16   0.29  1.3253E+01
   PER FORBS     0.20  0.01               2      0.20    0.10   1.00   0.96
  2    SPCC      0.20 1.00E-02 2.42E-01  2
   ANN FORBS     4.50  0.22              14      0.38    0.03   0.08   1.82
  4    CHEN      0.20 T        2.42E-01  1
  4    PLPA      4.30 2.15E-01 5.19E+00 14
     TOTAL           11.26    100.00           2.8340E+01           1.3608E+02

          * NOT COMPUTED IN PERCENT COMPOSITION
          T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr	233.86
Oppo	19.14
Phho	10.03
Shrub Production	263.03
Total Production	399.11

```
PRECIPITATION DATA
 RAIN GUAGE NO.        LANDER ANT     EXCL    AUGUST 17/78
OCT. 15 TO APR. 15 =   1.77
APR. 15 TO JULY 1  =   5.50
JULY 1 TO SEPT. 1  =    .75
SEPT. 1 TO OCT. 15 =   1.45
SEASON TOTAL       =   9.47
LONG TERM AVERAGE  =   8.67
```

Utilization	Percent of Total Production
AGSM	36.0%
ORHY	12.7%

```
16 33    MAY 07  RUNCOCA...
            1003   LOWER  GOVT    DRAW    AUGUST 02/78  INSIDE NATIVE

                               NUMBER PLOTS = 20
                                 PLOT SIZE 1X1
PLANT  PLANT   TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE   NAME    TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
               BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
               AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
               PER-    AREA              20              RENCES
               CENT

  5   *ARTR   544.60 2.72E+01            16
  6   *OPPO    30.00 1.50E+00             1
   PER GRASS   28.90  1.44               18      32.76    1.82    1.13  157.30
  3    AGSM    17.00 8.50E-01 5.26E+01   18      23.73    1.32    1.40  1.1394E+02
  3    POSE     3.80 1.90E-01 1.18E+01    5       0.66    0.13    0.17  3.1691E+00
  3    STCO     8.10 4.05E-01 2.51E+01    7       8.37    1.20    1.03  4.0190E+01
   PER FORBS    2.40  0.12                2      11.91    5.95    4.96  57.19
  2    ASCR     2.40 1.20E-01 7.43E+00    2
   ANN GRASS    0.90  0.04                4       0.15    0.04    0.17    0.72
  5    BRTE     0.90 4.50E-02 2.79E+00    4
   ANN FORBS    0.10  0.00                1       0.01    0.01    0.10    0.05
  4    CHDE     0.10 T        3.10E-01    1
     TOTAL           30.34    100.00            4.4830E+01              2.1526E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr	325.58
Oppo	5.87
Shrub Production	331.45
Total Production	546.71

```
PRECIPITATION DATA
 RAIN GUAGE NO.        LOWER  GOVT    DRAW    AUGUST 02/78
OCT. 15 TO APR. 15 =  2.58
APR. 15 TO JULY 1  =  5.08
JULY 1 TO SEPT. 1  =  1.00
SEPT. 1 TO OCT. 15 =  1.23
SEASON TOTAL       =  9.89
LONG TERM AVERAGE  = 10.38
```

Utilization	Percent of Total Production
AGSM	0.2%
STCO	8.2%

```
          1003   LOWER  GOVT   DRAW   AUGUST 02/78  OUTSID NATIVE

                               NUMBER PLOTS = 20
                                 PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA              20              RENCES
                CENT

 6    *ARTR   292.20 1.46E+01            16
 6    *PHHO     5.00 2.50E-01             2
  PER GRASS    37.50  1.37               18     16.55    0.92   0.44   79.47
 3    AGSM     12.00 6.00E-01 2.42E+01 18     10.48    0.58   0.87   5.0322E+01
 3    KOCR      5.50 2.75E-01 1.11E+01  5      0.91    0.18   0.17   4.3695E+00
 3    POSE      6.50 3.25E-01 1.31E+01 11      1.23    0.11   0.19   5.9061E+00
 3    STCO     13.50 6.75E-01 2.73E+01 13      3.93    0.30   0.29   1.8871E+01
  PER FORBS     6.50  0.32               10     11.65    1.16   1.79   55.94
 2    ANRC      2.50 1.25E-01 5.05E+00  1
 2    ASCR      1.00 5.00E-02 2.02E+00  1
 2    SPCC      3.00 1.50E-01 6.06E+00 10
  ANN GRASS     2.40  0.12               12      0.19    0.02   0.08    0.91
 5    BRTE      1.90 9.50E-02 3.84E+00 12
 5    VUCC      0.50 2.50E-02 1.01E+00  1
  ANN FORBS     3.10  0.15               10      0.38    0.04   0.12    1.82
 4    CHDE      0.20 1.00E-02 4.04E-01  2
 4    GIL       1.50 7.50E-02 3.03E+00 10
 4    LECE      0.20 T        4.04E-01  1
 4    PLPA      1.20 6.00E-02 2.42E+00  9
    TOTAL            17.33    100.00           2.8770E+01              1.3814E+02

     * NOT COMPUTED IN PERCENT COMPOSITION
     T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr	595.49
Chvi	8.69
Oppo	4.87
Shrub Production	609.00
Total Production	747.14

```
PRECIPITATION DATA
 RAIN GUAGE NO.        LOWER   GOVT   DRAW    AUGUST  02/78
OCT. 15 TO APR. 15 =  2.58
APR. 15 TO JULY 1  =  5.08
JULY 1 TO SEPT. 1  =  1.00
SEPT. 1 TO OCT. 15 =  1.23
SEASON TOTAL       =  9.89
LONG TERM AVERAGE  = 10.38
```

Utilization	Percent of Total Production
AGSM	12.2%
KOCR	26.3%
STCO	1.2%

```
          1003   LOWER  GOVT   DRAW   AUGUST 02/78  INSIDE SPRAY

                                NUMBER PLOTS = 20
                                  PLOT SIZE 1X1
PLANT  PLANT   TOTAL   AVE.    PERCENT  ABS.    TOTAL   AVE.    WGT./   LBS
CODE   NAME    TRANS   PER-    COMPO-   PLOT    WGT.    WGT.    UNIT    PER
               BASAL   CENT    SITION   FREQ.   GMS/20  /PLOT   BASAL   AC.
               AREA    BASAL            BASE    SQ.FT.  OCCUR-  AREA
               PER-    AREA             20              RENCES
               CENT

  PER GRASS   130.30  6.51               17     191.05   11.24   1.47 917.36
 3    AGSM     24.00 1.20E+00 1.71E+01 17      44.65    2.63   1.86  2.1440E+02
 3    AGSP      0.70 3.50E-02 4.98E-01  1       0.74    0.74   1.06  3.5533E+00
 3    CAEL      0.40 2.00E-02 2.84E-01  1       0.12    0.12   0.30  5.7620E-01
 3    KOCR      1.80 9.00E-02 1.28E+00  2       0.93    0.46   0.52  4.4656E+00
 3    POSE      5.50 2.75E-01 3.91E+00  6       1.84    0.31   0.33  8.8351E+00
 3    STCO     97.90 4.89E+00 6.96E+01 16     142.77    8.92   1.46  6.8554E+02
  PER FORBS     0.10  0.00               1       0.05    0.05   0.50   0.24
 2    SPCO      0.10 T        7.11E-02  1
  ANN GRASS     9.90  0.49              20       8.79    0.44   0.89  42.21
 5    BRTE      9.90 4.95E-01 7.04E+00 20
  ANN FORBS     0.40  0.02               2       0.09    0.04   0.22   0.43
 4    CHDE      0.10 T        7.11E-02  1
 4    DEPI      0.20 1.00E-02 1.42E-01  2
 4    LECE      0.10 T        7.11E-02  1
    TOTAL              7.03   100.00           1.9998E+02              9.6024E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

        Artr                               7.49
        Oppo                              10.01
                    Shrub Production      17.50
                    Total Production     977.74
PRECIPITATION DATA
 RAIN GUAGE NO.       LOWER  GOVT   DRAW   AUGUST 02/78
OCT. 15 TO APR. 15 =  2.58
APR. 15 TO JULY 1  =  5.08
JULY 1 TO SEPT. 1  =  1.00
SEPT. 1 TO OCT. 15 =  1.23
SEASON TOTAL       =  9.89
LONG TERM AVERAGE  = 10.38
```

No utilization

```
16 38    MAY 07  RUNX0CA...
           1003    LCWER  GOVT    DRAW    AUGUST 02/78  OUTSID SPRAY

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT   PLANT    TOTAL   AVE.    PERCENT  ABS.     TOTAL   AVE.    WGT./   LBS
CODE    NAME     TRANS   PER-    COMPO-   PLOT     WGT.    WGT.    UNIT    PER
                 BASAL   CENT    SITION   FREQ.    GMS/20  /PLOT   BASAL   AC.
                 AREA    BASAL            BASE     SQ.FT.  OCCUR-  AREA
                 PER-    AREA             2C               RENCES
                 CENT

  6    *ARTR     76.9C 3.84E+00              6
   PER GRASS    122.50  6.12                20      61.53    3.08    0.50 295.45
  3     AGSM     31.8C 1.59E+00 2.44E+01 20      55.21    2.76    1.74  2.6510E+02
  3     KOCR      2.0C 1.00E-01 1.53E+00  2       0.60    0.30    0.30  2.8810E+00
  3     POSE     22.50 1.12E+00 1.72E+01 18       3.20    0.18    0.14  1.5365E+01
  3     STCC     66.2C 3.31E+00 5.07E+01  5       2.52    0.50    0.04  1.2100E+01
   PER FCRBS      2.6C  0.13                 5       1.56    0.31    0.60    7.49
  2     ASCR      0.7C 3.50E-02 5.36E-01  1
  2     ERCC      0.80 4.00E-02 6.13E-01  1
  2     POAR      0.6C 3.00E-02 4.60E-01  5
  2     SPCC      0.5C 2.50E-02 3.83E-01  3
   ANN GRASS      2.3C  0.11                 9       0.87    0.10    0.38    4.18
  5     BRTE      2.3C 1.15E-01 1.76E+00  9
   ANN FCRBS      3.10  0.15                13       0.53    0.04    0.17    2.54
  4     CAMI      0.1C T        7.66E-02 .1
  4     CHDE      0.5C 2.50E-02 3.83E-01  4
  4     GIL       1.9C 9.50E-02 1.46E+00 13
  4     LARE      0.2C 1.00E-02 1.53E-01  2
  4     LECE      0.30 1.50E-02 2.30E-01  3
  4     PLPA      0.1C T        7.66E-02  1
     TOTAL              10.37    100.00          6.4490E+01                3.0966E+02

        * NCT COMPUTED IN PERCENT COMPOSITICN
        T - TRACE

PRODUCTICN ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr		29.38
Oppo		.81
	Shrub Production	30.19
	Total Production	339.87

```
PRECIPITATION DATA
 RAIN GUAGE NO.         LOWER   GOVT    DRAW    AUGUST 02/78
OCT. 15 TC APR. 15 = 2.58
APR. 15 TC JULY 1  = 5.08
JULY 1 TC SEPT. 1  = 1.00
SEPT. 1 TC OCT. 15 = 1.23
SEASON TCTAL       = 9.89
LCNG TERM AVERAGE  =10.38
```

Utilization	Percent of Total Production
AGSM	47.4%
POSE	3.7%
STCO	16.6%

```
08 55    MAY 08   RUNRZCA...
            1004    MCGRAW FLATS   EXCL    AUGUST 03/78  INSIDE NATIVE

                                 NUMBER PLOTS = 20
                                   PLOT SIZE 1X1
PLANT  PLANT   TOTAL   AVE.    PERCENT  ABS.    TOTAL   AVE.    WGT./   LBS
CODE   NAME    TRANS   PER-    COMPO-   PLOT    WGT.    WGT.    UNIT    PER
               BASAL   CENT    SITION   FREQ.   GMS/20  /PLOT   BASAL   AC.
               AREA    BASAL            BASE    SQ.FT.  OCCUR-  AREA
               PER-    AREA             20              RENCES
               CENT

 6    *ARTR    307.00 1.53E+01                17
 6    *PHHO     19.10 9.55E-01                 6
  PER GRASS     71.40  3.57                   20     30.68    1.53   0.43 147.32
 3    AGSM      18.70 9.35E-01 2.39E+01 20     16.96    0.85   0.91   8.1437E+01
 3    POFE      52.70 2.63E+00 6.74E+01 14     13.72    0.98   0.26   6.5879E+01
  PER FORBS      6.60  0.33                   16      5.31    0.33   0.80   25.50
 2    CRAC       1.00 5.00E-02 1.28E+00  3
 2    SPCC       0.10 T            1.28E-01  1
 2    TRGY       0.20 T            2.56E-01  1
 2    VIAM       5.30 2.65E-01 6.78E+00 16
  ANN FORBS      0.20  0.01                    2      0.11    0.05   0.55    0.53
 4    GIPU       0.20 1.00E-02 2.56E-01  2
    TOTAL              20.21     100.00           3.6100E+01               1.7334E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr		171.89
Chvi		.96
Phho		24.67
	Shrub Production	197.52
	Total Production	370.86

```
PRECIPITATION DATA
 RAIN GUAGE NO.          MCGRAW FLATS   EXCL    AUGUST 03/78
OCT. 15 TO APR. 15 =  1.70
APR. 15 TO JULY 1  =  3.92
JULY 1 TO SEPT. 1  =   .75
SEPT. 1 TO OCT. 15 =  1.60
SEASON TOTAL       =  7.97
LONG TERM AVERAGE  =  9.46
```

No utilization

1004 MCGRAW FLATS EXCL AUGUST 03/78 OUTSID NATIVE

NUMBER PLOTS = 20
PLOT SIZE 1X1

PLANT CODE	PLANT NAME	TOTAL TRANS BASAL AREA PER-CENT	AVE. PER-CENT BASAL AREA	PERCENT COMPO-SITION	ABS. PLOT FREQ. BASE 20	TOTAL WGT. GMS/20 SQ.FT.	AVE. WGT. /PLOT OCCUR-RENCES	WGT./ UNIT BASAL AREA	LBS PER AC.
6	*ARTR	401.50	2.01E+01		18				
6	*CHDO	25.50	1.27E+00		3				
6	*PHHO	41.00	2.05E+00		12				
	PER GRASS	55.00	2.75		20	18.90	0.94	0.34	90.75
3	AGSM	16.20	8.10E-01	2.63E+01	20	10.56	0.53	0.65	5.0706E+01
3	ORHY	1.00	5.00E-02	1.62E+00	1	0.31	0.31	0.31	1.4885E+00
3	POFE	35.80	1.79E+00	5.81E+01	15	6.85	0.46	0.19	3.2892E+01
3	STCO	2.00	1.00E-01	3.25E+00	2	1.18	0.59	0.59	5.6660E+00
	PER FORBS	6.50	0.32		17	3.86	0.23	0.59	18.53
2	CRAC	0.20	T	3.25E-01	1				
2	OREA	0.50	2.50E-02	8.12E-01	1				
2	SPCO	0.30	1.50E-02	4.87E-01	1				
2	TRGY	1.10	5.50E-02	1.79E+00	4				
2	VIAM	4.40	2.20E-01	7.14E+00	17				
	ANN FORBS	0.10	0.00		1	0.25	0.25	2.50	1.20
4	GIPU	0.10	T	1.62E-01	1				
	TOTAL		26.48	100.00		2.3010E+01			1.1049E+02

* NOT COMPUTED IN PERCENT COMPOSITION
T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr	306.34
Chvi	8.69
Oppo	3.11
Phho	59.29
Shrub Production	377.39
Total Production	487.88

PRECIPITATION DATA
RAIN GUAGE NO. MCGRAW FLATS EXCL AUGUST 03/78
OCT. 15 TO APR. 15 = 1.70
APR. 15 TO JULY 1 = 3.92
JULY 1 TO SEPT. 1 = .75
SEPT. 1 TO OCT. 15 = 1.60
SEASON TOTAL = 7.97
LONG TERM AVERAGE = 9.46

Utilization	Percent of Total Production
POFE	0.5%

```
08 49    MAY 08  RUNLZCA...
           0920    MEDICI LODGE   EXCL    JULY   28/78  INSIDE SPRAY

                                  NUMBER PLOTS = 20
                                    PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA              20              RENCES
                CENT

  5    *ARTR    44.30 2.21E+00                5
  6    *JUSC   325.00 1.63E+01                5
   PER GRASS    12.20  0.61                   6      2.45    0.41   0.20   11.76
  3    AGSP      1.80 9.00E-02 3.62E+00   3      1.04    0.35   0.58   4.9938E+00
  3    FEIC      3.20 1.60E-01 6.44E+00   6      0.57    0.09   0.18   2.7370E+00
  3    KOCR      0.80 4.00E-02 1.61E+00   3      0.11    0.04   0.14   5.2819E-01
  3    POSE      6.40 3.20E-01 1.29E+01   6      0.73    0.12   0.11   3.5052E+00
   PER FORBS     5.80  0.29                  16      4.85    0.30   0.84   23.29
  2    ALTE      0.20 1.00E-02 4.02E-01   2
  2    GACC      0.10 T        2.01E-01   1
  2    GICC      0.60 3.00E-02 1.21E+00   3
  2    MACA      0.80 4.00E-02 1.61E+00   4
  2    POL       4.10 2.05E-01 8.25E+00  16
   ANN GRASS    15.00  0.75                  19      9.62    0.51   0.64   46.19
  5    BRTE     14.60 7.30E-01 2.94E+01  19
  5    VUCC      0.40 2.00E-02 8.05E-01   1
   ANN FORBS    16.70  0.83                  19      8.12    0.43   0.49   38.99
  4    CRY       0.10 T        2.01E-01   1
  4    LECE     16.60 8.30E-01 3.34E+01  19
     TOTAL             20.95    100.00          2.5040E+01             1.2023E+02

        * NOT COMPUTED IN PERCENT COMPOSITION
        T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

No shrub data collected.

```
PRECIPITATION DATA
 RAIN GUAGE NO.          MEDICI LODGE   EXCL    JULY    28/78
OCT. 15 TO APR. 15  =  5.96
APR. 15 TO JULY 1   =  5.72
JULY 1 TO SEPT. 1   =  3.94
SEPT. 1 TO OCT. 15  =  2.12
SEASON TOTAL        = 17.74
LONG TERM AVERAGE   = 14.24
```

No utilization

```
          0920   MEDICI LODGE  EXCL   JULY   28/78  OUTSID NATIVE

                             NUMBER PLOTS = 20
                               PLOT SIZE 1X1
PLANT  PLANT   TOTAL  AVE.     PERCENT  ABS.    TOTAL  AVE.   WGT./  LBS
CODE   NAME    TRANS  PER-     COMPO-   PLOT    WGT.   WGT.   UNIT   PER
               BASAL  CENT     SITION   FREQ.   GMS/20 /PLOT  BASAL  AC.
               AREA   BASAL             BASE    SQ.FT. OCCUR- AREA
               PER-   AREA              20             RENCES
               CENT

 6   *ARTR   21.00 1.05E+00           3
 6   *JUSC  340.00 1.70E+01           5
 6   *PHHO    1.60 8.00E-02           1
 6   *XASA   25.50 1.27E+00           2
  PER GRASS  13.50  0.67              7    3.15   0.45   0.23  15.13
 3    AGSP    3.30 1.65E-01 1.10E+01  7    1.10   0.16   0.33  5.2819E+00
 3    FEID    2.30 1.15E-01 7.69E+00  3    0.82   0.27   0.36  3.9374E+00
 3    KOCR    3.10 1.55E-01 1.04E+01  5    0.55   0.11   0.18  2.6409E+00
 3    POSE    2.70 1.35E-01 9.03E+00  6    0.26   0.04   0.10  1.2484E+00
 3    STCO    2.10 1.05E-01 7.02E+00  3    0.42   0.14   0.20  2.0167E+00
  PER FORBS   6.20  0.31             14    2.16   0.15   0.35  10.37
 2    CYMO    0.30 1.50E-02 1.00E+00  1
 2    MACA    0.10 T        3.34E-01  1
 2    POL     3.60 1.80E-01 1.20E+01 14
 2    SEST    2.20 1.10E-01 7.36E+00  4
  ANN GRASS   0.10  0.00              1    0.01   0.01   0.10   0.05
 5    BRTE    0.10 T        3.34E-01  1
  ANN FORBS  10.10  0.50             17    3.79   0.22   0.38  18.20
 4    LEDE   10.10 5.05E-01 3.38E+01 17
    TOTAL         20.90    100.00        9.1100E+00            4.3743E+01

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

No shrub data collected.

```
PRECIPITATION DATA
 RAIN GUAGE NO.       MEDICI LODGE  EXCL   JULY   28/78
OCT. 15 TO APR. 15 = 5.96
APR. 15 TO JULY 1  = 5.72
JULY 1 TO SEPT. 1  = 3.94
SEPT. 1 TO OCT. 15 = 2.12
SEASON TOTAL       =17.74
LONG TERM AVERAGE  =14.24
```

No utilization

```
          2301    MESA   ANTELO EXCL   AUGUST 15/78  INSIDE NATIVE

                                NUMBER PLOTS = 20
                                  PLOT SIZE 1X1
PLANT  PLANT   TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE   NAME    TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
               BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
               AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
               PER-    AREA              20              RENCES
               CENT

 6   *ARTR    705.50 3.53E+01               20
 6   *PHHO      1.00 5.00E-02                1
   PER GRASS   24.30  1.21                  19     29.44    1.55   1.21 141.36
 3    AGSM     14.80 7.40E-01 6.04E+01 19     20.96    1.10   1.42  1.0064E+02
 3    ORHY      0.70 3.50E-02 2.86E+00  1      0.96    0.96   1.37  4.6096E+00
 3    POFE      0.70 3.50E-02 2.86E+00  1      0.57    0.57   0.81  2.7370E+00
 3    POSE      6.20 3.10E-01 2.53E+01 10      6.38    0.64   1.03  3.0635E+01
 3    SIHY      1.40 7.00E-02 5.71E+00  3      0.33    0.11   0.24  1.5846E+00
 3    STCO      0.50 2.50E-02 2.04E+00  1      0.24    0.24   0.48  1.1524E+00
   ANN FORBS    0.20  0.01                   1     0.06    0.06   0.30    0.29
 4    CHE       0.10 T        4.08E-01  1
 4    GILE      0.10 T        4.08E-01  1
     TOTAL            36.55    100.00         2.9500E+01              1.4165E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
      Artr                                  251.28
      Chvi                                    4.42
      Eula                                    1.58
      Oppo                                     .33
      Phho                                   18.58
                   Shrub Production          276.19
                   Total Production          417.84
PRECIPITATION DATA
 RAIN GUAGE NO.          MESA    ANTELO EXCL    AUGUST 16/78
OCT. 15 TO APR. 15  =   5.11
APR. 15 TO JULY 1   =   1.83
JULY 1 TO SEPT. 1   =   1.10
SEPT. 1 TO OCT. 15  =    .90
SEASON TOTAL        =   8.94
LONG TERM AVERAGE   =   8.19
```

No utilization

```
          2301    MESA   ANTELO EXCL   AUGUST 16/78  OUTSID NATIVE

                               NUMBER PLOTS = 20
                                 PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA              20              RENCES
                CENT

 5    *ARTR   383.50 1.92E+01            17
 5    *CHVI    71.00 3.55E+00             7
 5    *PHHO    10.20 5.10E-01             6
  PER GRASS    27.40  1.37               20     21.53    1.08   0.79 103.38
 3     AGSM    19.70 9.85E-01 7.11E+01 20     17.74    0.89   0.90  8.5182E+01
 3     CAEL     1.70 8.50E-02 6.14E+00  3      1.05    0.35   0.62  5.0418E+00
 3     ORHY     1.80 9.00E-02 6.50E+00  1      1.29    1.29   0.72  6.1942E+00
 3     POSE     3.00 1.50E-01 1.08E+01  5      0.75    0.15   0.25  3.6013E+00
 3     SIHY     1.20 6.00E-02 4.33E+00  2      0.70    0.35   0.58  3.3612E+00
  PER FORBS     0.10  0.00              1      0.18    0.18   1.80   0.86
 2     MACA     0.10 T        3.61E-01  1
  ANN FORBS     0.20  0.01              1      0.15    0.15   0.75   0.72
 4     ARLI     0.20 T        7.22E-01  1
     TOTAL            24.62   100.00          2.1860E+01            1.0497E+02

        * NOT COMPUTED IN PERCENT COMPOSITION
        T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr	174.43
Chvi	11.52
Eula	.96
Phho	15.36
Shrub Production	202.27
Total Production	307.24

```
PRECIPITATION DATA
 RAIN GUAGE NO.       MESA    ANTELO EXCL    AUGUST 16/78
OCT. 15 TO APR. 15 =  5.11
APR. 15 TO JULY 1  =  1.83
JULY 1 TO SEPT. 1  =  1.10
SEPT. 1 TO OCT. 15 =   .90
SEASON TOTAL       =  8.94
LONG TERM AVERAGE  =  8.19
```

Utilization	Percent of Total Production
AGSM	8.8%

```
08 58    MAY 08  RUNUZCA...
            1503   NORTH  BUTTE  RELIC  JULY   25/78  INSIDE RELIC

                                NUMBER PLOTS = 20
                                  PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA              20              RENCES
                CENT

 6    *ARTR     30.00 1.50E+00              1
 6    *PHHC      0.10 T                     1
  PER GRASS    161.20  8.06                18    163.23     9.07   1.01  783.78
 3    AGSP      64.00 3.20E+00 3.93E+01 13      83.20     6.40   1.30   3.9950E+02
 3    BOGR       3.40 1.70E-01 2.09E+00  5       2.13     0.43   0.63   1.0228E+01
 3    CAFI      43.40 2.17E+00 2.67E+01 18      33.70     1.87   0.78   1.6182E+02
 3    POSE       0.40 2.00E-02 2.46E-01  2       0.06     0.03   0.15   2.8810E-01
 3    STCO      50.00 2.50E+00 3.07E+01 10      44.14     4.41   0.88   2.1195E+02
  PER FORBS      1.50  0.07                 7       2.00     0.29   1.33     9.60
 2    AST        0.20 T          1.23E-01  1
 2    ALTE       0.20 1.00E-02 1.23E-01  2
 2    SPCO       1.10 5.50E-02 6.76E-01  7
  ANN FORBS      0.10  0.00                 1       0.11     0.11   1.10     0.53
 4    GIPU       0.10 T          6.14E-02  1
    TOTAL               9.64     100.00          1.6534E+02               7.9391E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr		142.56
Oppo		.36
Phho		.67
	Shrub Production	143.59
	Total Production	937.50

```
PRECIPITATION DATA
 RAIN GUAGE NO.          NORTH  BUTTE  RELIC  JULY   25/78
OCT. 15 TO APR. 15 =  1.89
APR. 15 TO JULY 1  = 10.12
JULY 1 TO SEPT. 1  =  2.13
SEPT. 1 TO OCT. 15 =  1.79
SEASON TOTAL       = 15.93
LONG TERM AVERAGE  = 11.26
```

No utilization

```
         1504    ROUND  TOP     RELIC  JULY   25/78  INSIDE RELIC

                             NUMBER PLOTS = 20
                               PLOT SIZE 1X1
PLANT  PLANT  TOTAL   AVE.    PERCENT   ABS.    TOTAL  AVE.    WGT./   LBS
CODE   NAME   TRANS   PER-    COMPO-    PLOT    WGT.   WGT.    UNIT    PER
              BASAL   CENT    SITION    FREQ.   GMS/20 /PLOT   BASAL   AC.
              AREA    BASAL             BASE    SQ.FT. OCCUR-  AREA
              PER-    AREA              20             RENCES
              CENT

 5   *ARTR     35.00 1.75E+00              2
 6   *XASA     44.80 2.24E+00              8
  PER GRASS   167.20  8.36                13     140.98  10.84   0.84 676.94
 3   AGSP      94.00 4.70E+00 5.36E+01 12     106.16    8.85   1.13  5.0975E+02
 3   CAFI      51.00 2.55E+00 2.91E+01 13      16.72    1.29   0.33  8.0284E+01
 3   POSE       3.70 1.85E-01 2.11E+00  4       0.49    0.12   0.13  2.3528E+00
 3   STCO      18.50 9.25E-01 1.05E+01  7      17.61    2.52   0.95  8.4558E+01
  PER FORBS     3.80  0.19                 4       8.60    2.15   2.26  41.29
 2   ALTE       0.10 T        5.70E-02  1
 2   CRAC       1.20 6.00E-02 6.84E-01  2
 2   GACO       0.50 2.50E-02 2.85E-01  1
 2   MUCI       1.60 8.00E-02 9.12E-01  4
 2   PEGI       0.40 2.00E-02 2.28E-01  3
  ANN GRASS     1.60  0.08                 9       0.76    0.08   0.47    3.65
 5   BRTE       1.60 8.00E-02 9.12E-01  9
  ANN FORBS     2.90  0.14                 3       1.43    0.48   0.49    6.87
 4   CAMI       2.50 1.25E-01 1.42E+00  1
 4   DEPI       0.40 2.00E-02 2.28E-01  3
   TOTAL             12.76    100.00          1.5177E+02              7.2875E+02

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

       Artr                              68.21
       Chvi                              44.50
                Shrub Production        112.71
                Total Production        831.46


PRECIPITATION DATA
 RAIN GUAGE NO.        ROUND  TOP    RELIC  JULY   25/78
OCT. 15 TO APR. 15 = E1.89
APR. 15 TO JULY 1  = 10.63
JULY 1 TO SEPT. 1  =  2.21
SEPT. 1 TO OCT. 15 =  1.88
SEASON TOTAL       =E16.61
LONG TERM AVERAGE  =


       No utilization
```

```
10 17    MAY 07  RUNCECA...
              1505    SAND    GULCH  EXCL    JULY    13/78  INSIDE NATIVE

                                  NUMBER OF PLOTS
                        COVER = 200, PRODUCTION = 20
                          PLOT SIZE 1 FT. X 10 FT.
PLANT   PLANT   TOTAL   AVE.    PERCENT  ABS.     TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-   PLOT     WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION   FREQ.    GMS/    /PLOT   BASAL   AC.
                AREA    BASAL            BASE     200     OCCUR-  AREA
                PER-    AREA             200      SQ.FT.  RENCES
                CENT

  6  *MAGL      6.0  3.00E-02              2
  6  *OPPO    174.3  8.71E-01             31
  1  ATGA    2088.5  1.04E+01 8.34E+01103      988.83    9.60  0.47  4.7481E+02
  PER GRASS   358.7  1.79E+00             96    ******   10.93  2.92  5.0364E+02
  3  AGCR     131.9  6.59E-01 5.26E+00 51      517.08   10.14  3.92  2.4829E+02
  3  AGSM      94.4  4.72E-01 3.77E+00 96      244.07    2.54  2.59  1.1719E+02
  3  AGSP      86.6  4.33E-01 3.46E+00 27      268.93    9.96  3.11  1.2913E+02
  3  BOGR       2.5  1.25E-02 9.98E-02  1        0.29    0.29  0.12  1.3925E-01
  3  ORHY       2.9  1.45E-02 1.16E-01  2        3.01    1.50  1.04  1.4453E+00
  3  POSE      38.9  1.94E-01 1.55E+00 45       11.18    0.25  0.29  5.3683E+00
  3  SIHY       1.5  T        5.99E-02  1        4.32    4.32  2.88  2.0743E+00
  PER FORBS    1.40  0.01             10       15.40    1.54 11.00   7.39
  2  ALTE       1.4  T        5.59E-02 10
  ANN GRASS   29.90  0.15             80       61.48    0.77  2.06  29.52
  5  BRTE      29.9  1.49E-01 1.19E+00 80
  ANN FORBS   26.80  0.13             45      100.57    2.23  3.75  48.29
  4  CAMI       1.4  T        5.59E-02  8
  4  CHE        0.4  T        1.60E-02  4
  4  DEPI       6.1  3.05E-02 2.43E-01 41
  4  LARE       6.3  3.15E-02 2.51E-01 38
  4  LEDE       2.9  1.45E-02 1.16E-01 23
  4  LEPE       9.7  4.85E-02 3.87E-01 45
     TOTAL          13.4     100.00          2.21516E+03            1.06365E+03

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

     Oppo                            5.78
                 Shrub Production    5.78
                 Total Production 1069.43


PRECIPITATION DATA
 RAIN GUAGE NO.        SAND   GULCH  EXCL   JULY   13/78
OCT. 15 TO APR. 15 =  E2.95
APR. 15 TO JULY 1  =  E5.50
JULY 1 TO SEPT. 1  =  E2.25
SEPT. 1 TO OCT. 15 =   1.68
SEASON TOTAL       = E12.38
LONG TERM AVERAGE  =   8.99


     No utilization
```

```
08 09   MAY 11  RUNC2EA...
          1505   SAND   GULCH  EXCL    JULY   14/78  OUT     NATIVE

                              NUMBER OF PLOTS
                       COVER = 200, PRODUCTION = 20
                        PLOT SIZE 1 FT. X 10 FT.
PLANT   PLANT   TOTAL  AVE.    PERCENT  ABS.    TOTAL   AVE.    WGT./  LBS
CODE    NAME    TRANS  PER-    COMPO-   PLOT    WGT.    WGT.    UNIT   PER
                BASAL  CENT    SITION   FREQ.   GMS/    /PLOT   BASAL  AC.
                AREA   BASAL            BASE    200     OCCUR-  AREA
                PER-   AREA             200     SQ.FT.  RENCES
                CENT

 6  *OPPC     173.0  8.65E-01               13
 1  ATGA     2016.7  1.01E+01 7.34E+01130        963.18    7.41   0.48   4.6249E+02
  PER GRASS   661.5  3.31E+00              130   608.08    4.68   0.92   2.9198E+02
 3  AGSM      215.2  1.08E+00 7.83E+00130        420.82    3.24   1.96   2.0206E+02
 3  BOGR      350.8  1.75E+00 1.28E+01 32        134.17    4.19   0.38   6.4424E+01
 3  ORHY        6.8  3.40E-02 2.47E-01  7         11.43    1.63   1.68   5.4883E+00
 3  POSE       79.1  3.95E-01 2.88E+00 74         18.23    0.25   0.23   8.7535E+00
 3  SIHY        9.6  4.80E-02 3.49E-01  9         23.43    2.60   2.44   1.1250E+01
  PER FORBS     2.1  0.01                4         0.24    0.06   0.11   0.12
 2  ALTE        0.4  T        1.46E-02  3
 2  POAV        1.1  T        4.00E-02  4
 2  SPCO        0.6  T        2.18E-02  2
 2  UNK#3      10.5  5.25E-02 3.82E-01 46
  ANN GRASS    12.00  0.06              46        17.65    0.38   1.47    8.47
 5  BRTE       11.8  5.90E-02 4.29E-01 46
 5  VUOC        0.2  T        T         1
  ANN FORBS    56.3   0.28              83        81.54    0.98   1.45   39.15
 4  ATAR        1.8  T        6.55E-02 14
 4  DEPI        0.2  T        T         1
 4  LAPE       15.6  7.80E-02 5.68E-01 83
 4  LEDI        5.1  2.55E-02 1.86E-01 32
 4  LEPE       10.2  5.10E-02 3.71E-01 49
 4  MONU        2.0  T        7.28E-02 11
 4  PLPA       10.9  5.45E-02 3.97E-01 58
 4  GIPU       10.5  5.25E-02 3.82E-01 46
    TOTAL            14.6     100.0           1.67071E+03             8.02224E+02
     * NOT COMPUTED IN PERCENT COMPOSITION
     T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS


      Oppo                            5.78
                 Shrub Production     5.78
                 Total Production   808.00

PRECIPITATION DATA
 RAIN GUAGE NO.        SAND   GULCH  EXCL    JULY   14/78
OCT. 15 TO APR. 15 =  E2.95
APR. 15 TO JULY 1  =  E5.50
JULY 1 TO SEPT. 1  =  E2.25
SEPT. 1 TO OCT. 15 =   1.68
SEASON TOTAL       = E12.34
LONG TERM AVERAGE  =   8.99


      No utilization
```

```
           1009    SHOSHO ANT     2       AUGUST 17/78  INSIDE NORTH

                                  NUMBER PLOTS = 20
                                    PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA              20              RENCES
                CENT

  6    *ARTR    314.10 1.57E+01                 8
  6    *OPPO     31.00 1.55E+00                 3
   PER GRASS     79.90  3.99                   15      19.49    1.30    0.24    93.58
  3    AGSM      0.10 T          1.21E-01     1       0.00    0.00    0.00    0.0000
  3    BOGR     71.70 3.58E+00  8.70E+01    15      16.90    1.13    0.24    8.1149E+01
  3    ORHY      0.40 2.00E-02  4.85E-01     1       0.11    0.11    0.27    5.2819E-01
  3    POSE      7.30 3.65E-01  8.86E+00    11       1.65    0.15    0.23    7.9228E+00
  3    SIHY      0.40 2.00E-02  4.85E-01     1       0.83    0.83    2.07    3.9854E+00
   PER FORBS     1.10  0.05                     4       1.45    0.36    1.32     6.96
  2    DEGE      0.10 T          1.21E-01     1
  2    SPCC      1.00 5.00E-02  1.21E+00     4
   ANN FORBS     1.40  0.07                     5       0.48    0.10    0.34     2.30
  4    DEPI      0.10 T          1.21E-01     1
  4    GIPU      0.50 2.50E-02  6.07E-01     5
  4    LECE      0.30 1.50E-02  3.64E-01     3
  4    PLPA      0.50 2.50E-02  6.07E-01     4
     TOTAL             21.37     100.00               2.1420E+01              1.0285E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr		315.60
Oppo		24.12
Phho		.19
	Shrub Production	339.91
	Total Production	442.76

PRECIPITATION DATA
RAIN GUAGE NO.   SHOSHO ANT   2   AUGUST 17/78
OCT. 15 TO APR. 15 = 1.93
APR. 15 TO JULY 1 = 4.99
JULY 1 TO SEPT. 1 = 1.32
SEPT. 1 TO OCT. 15 = .92
SEASON TOTAL = 9.16
LONG TERM AVERAGE = 8.44

No utilization

1009 SHOSHO ANT 2 AUGUST 17/78 INSIDE SOUTH

NUMBER PLOTS = 20
PLOT SIZE 1X1

PLANT CODE	PLANT NAME	TOTAL TRANS BASAL AREA PER-CENT	AVE. PER-CENT BASAL AREA	PERCENT COMPO-SITION	ABS. PLOT FREQ. BASE 20	TOTAL WGT. GMS/20 SQ.FT.	AVE. WGT. /PLOT OCCUR-RENCES	WGT./ UNIT BASAL AREA	LBS PER AC.
6	*ARTR	517.50	2.59E+01		14				
6	*OPPO	5.00	2.50E-01		2				
	PER GRASS	38.30	1.91		8	12.63	1.58	0.33	60.65
3	AGSM	3.20	1.60E-01	7.98E+00	8	4.86	0.61	1.52	2.3336E+01
3	BOGR	22.90	1.14E+00	5.71E+01	8	5.51	0.69	0.24	2.6457E+01
3	ORHY	7.50	3.75E-01	1.87E+01	5	1.20	0.24	0.16	5.7620E+00
3	POSE	4.20	2.10E-01	1.05E+01	6	0.83	0.14	0.20	3.9854E+00
3	SIHY	0.50	2.50E-02	1.25E+00	1	0.23	0.23	0.46	1.1044E+00
	PER FORBS	1.20	0.06		6	1.76	0.29	1.47	8.45
2	ALTE	0.10	T	2.49E-01	1				
2	DECE	0.20	1.00E-02	4.99E-01	2				
2	SPCC	0.90	4.50E-02	2.24E+00	6				
	ANN FORBS	0.60	0.03		2	0.03	0.01	0.05	0.14
4	GIPU	0.20	1.00E-02	4.99E-01	2				
4	LECE	0.10	T	2.49E-01	1				
4	PLPA	0.30	1.50E-02	7.48E-01	2				
	TOTAL		28.13	100.00		1.4420E+01			6.9240E+01

* NOT COMPUTED IN PERCENT COMPOSITION
T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr	315.60
Oppo	24.12
Phho	.19
Shrub Production	339.91
Total Production	409.15

PRECIPITATION DATA
RAIN GUAGE NO. SHOSHO ANT 2 AUGUST 17/78
OCT. 15 TO APR. 15 = 1.93
APR. 15 TO JULY 1 = 4.99
JULY 1 TO SEPT. 1 = 1.32
SEPT. 1 TO OCT. 15 = .92
SEASON TOTAL = 9.16
LONG TERM AVERAGE = 8.44

Utilization	Percent of Total Production
AGSM	2.8%
ORHY	0.8%

```
09 49    MAY 08  RUN[2CA...
           1009   SHOSHO ANT    2        AUGUST 17/78  OUTSID NATIVE

                                  NUMBER PLOTS = 20
                                    PLOT SIZE 1X1
PLANT  PLANT   TOTAL   AVE.    PERCENT   ABS.    TOTAL  AVE.    WGT./   LBS
CODE   NAME    TRANS   PER-    COMPO-    PLOT    WGT.   WGT.    UNIT    PER
               BASAL   CENT    SITION    FREQ.   GMS/20 /PLOT   BASAL   AC.
               AREA    BASAL             BASE    SQ.FT. OCCUR-  AREA
               PER-    AREA              20             RENCES
               CENT

  6    *ARTR   318.00 1.59E+01             17
  6    *OPPO    14.50 7.25E-01              3
  6    *PHHO     1.00 5.00E-02              1
  PER GRASS    40.40  2.02                 18      16.06    0.89   0.40   77.12
  3    AGSM      4.70 2.35E-01 1.06E+01 18         7.18    0.40   1.53   3.4476E+01
  3    BOGR     20.60 1.03E+00 4.65E+01  6         4.21    0.70   0.20   2.0215E+01
  3    ORHY      3.90 1.95E-01 8.80E+00  5         2.06    0.41   0.53   9.8915E+00
  3    POSE     11.20 5.60E-01 2.53E+01 15         2.61    0.17   0.23   1.2532E+01
  ANN GRASS      0.10  0.00                 1       0.04    0.04   0.40    0.19
  5    BRTE      0.10 T        2.26E-01  1
  ANN FORBS      3.80  0.19                12       1.60    0.13   0.42    7.68
  4    LECE      0.50 2.50E-02 1.13E+00  5
  4    PLPA      1.70 8.50E-02 3.84E+00  9
  4    SAKA      1.60 8.00E-02 3.61E+00 12
     TOTAL            18.89    100.00            1.7700E+01              8.4990E+01

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr		159.26
Oppo		24.84
Phho		5.71
	Shrub Production	189.81
	Total Production	274.80

```
PRECIPITATION DATA
 RAIN GUAGE NO.          SHOSHO ANT     2       AUGUST 17/78
OCT. 15 TO APR. 15 =   1.93
APR. 15 TO JULY 1  =   4.99
JULY 1 TO SEPT. 1  =   1.32
SEPT. 1 TO OCT. 15 =    .92
SEASON TOTAL       =   9.16
LONG TERM AVERAGE  =   8.44
```

Utilization	Percent of Total Production
AGSM	14.9%
ORHY	28.1%

```
            1011    SHOSHO ANT     4        AUGUST 17/78   INSIDE NORTH

                                   NUMBER PLOTS  = 20
                                      PLOT SIZE 1x1
PLANT   PLANT    TOTAL    AVE.     PERCENT   ABS.     TOTAL    AVE.      WGT./    LBS
CODE    NAME     TRANS    PER-     COMPO-    PLOT     WGT.     WGT.      UNIT     PER
                 BASAL    CENT     SITION    FREQ.    GMS/20   /PLOT     BASAL    AC.
                 AREA     BASAL              BASE     SQ.FT.   OCCUR-    AREA
                 PER-     AREA               20                RENCES
                 CENT

  6     *ARTR    167.50 8.37E+00              11
  6     *CELA      2.50 1.25E-01               1
  6     *OPPO     49.00 2.45E+00               6
   PER GRASS      62.00  3.10                 13      19.13     1.47    0.31    91.86
  3     AGSM       2.40 1.20E-01 3.76E+00  9       3.00     0.33    1.25    1.4405E+01
  3     BOGR      50.50 2.52E+00 7.92E+01 10      12.62     1.26    0.25    6.0597E+01
  3     POSE       9.10 4.55E-01 1.43E+01 13       3.51     0.27    0.39    1.6854E+01
   PER FORBS      0.70  0.03                   3       0.66     0.22    0.94     3.17
  2     ALTE       0.10 T          1.57E-01  1
  2     SPCC       0.60 3.00E-02 9.40E-01  3
   ANN FORBS      1.10  0.05                   5       0.42     0.08    0.38     2.02
  4     DEPI       0.10 T          1.57E-01  1
  4     GIPU       0.40 2.00E-02 6.27E-01  2
  4     PLPA       0.60 3.00E-02 9.40E-01  5
     TOTAL             14.14    100.00            2.0210E+01                 9.7042E+01

         * NOT COMPUTED IN PERCENT COMPOSITION
         T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr		142.85
Oppo		35.13
	Shrub Production	177.98
	Total Production	275.02

```
PRECIPITATION DATA
 RAIN GUAGE NO.          SHOSHO ANT     4        AUGUST 17/78
OCT. 15 TO APR. 15  =  1.89
APR. 15 TO JULY 1   =  5.07
JULY 1 TO SEPT. 1   =  1.03
SEPT. 1 TO OCT. 15  =   .93
SEASON TOTAL        =  8.92
LONG TERM AVERAGE   =  8.08
```

Utilization	Percent of Total Production
AGSM	39.0%

```
          1011   SHOSHO ANT    4      AUGUST 17/78  INSIDE SOUTH

                                NUMBER PLOTS = 20
                                  PLOT SIZE 1X1
PLANT  PLANT   TOTAL  AVE.    PERCENT  ABS.    TOTAL   AVE.    WGT./   LBS
CODE   NAME    TRANS  PER-    COMPO-   PLOT    WGT.    WGT.    UNIT    PER
               BASAL  CENT    SITION   FREQ.   GMS/20  /PLOT   BASAL   AC.
               AREA   BASAL            BASE    SQ.FT.  OCCUR-  AREA
               PER-   AREA             20              RENCES
               CENT

  6    *ARTR   292.50 1.46E+01          10
  6    *CELA     1.50 7.50E-02           1
  6    *OPPO    21.00 1.05E+00           4
   PER GRASS    74.50  3.72             11      21.13    1.92   0.28 101.46
  3    AGSM      0.40 2.00E-02 5.23E-01  4       0.78    0.19   1.95  3.7453E+00
  3    BOGR     61.90 3.09E+00 8.09E+01 11      15.78    1.43   0.25  7.5771E+01
  3    POSE     12.20 6.10E-01 1.59E+01 11       4.57    0.42   0.37  2.1944E+01
   PER FORBS     0.40  0.02              3       0.59    0.20   1.47   2.83
  2    SPCC      0.40 2.00E-02 5.23E-01  3
   ANN FORBS     1.60  0.08              7       1.03    0.15   0.64   4.95
  4    DEPI      0.10 T        1.31E-01  1
  4    GIPU      0.90 4.50E-02 1.18E+00  7
  4    PLPA      0.60 3.00E-02 7.84E-01  4
     TOTAL           19.57    100.00         2.2750E+01             1.0924E+02

         * NOT COMPUTED IN PERCENT COMPOSITION
         T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr		142.85
Oppo		35.13
	Shrub Production	177.98
	Total Production	287.22

PRECIPITATION DATA

RAIN GUAGE NO.	SHOSHO ANT 4	AUGUST 17/78
OCT. 15 TO APR. 15 =	1.89	
APR. 15 TO JULY 1 =	5.07	
JULY 1 TO SEPT. 1 =	1.03	
SEPT. 1 TO OCT. 15 =	.93	
SEASON TOTAL =	8.92	
LONG TERM AVERAGE =	8.08	

Utilization	Percent of Total Production
AGSM	42.3%

```
09 52    MAY 08  RUNE2CA...
           1011    SHOSHO ANT     4       AUGUST 17/78  OUTSID NATIVE

                                      NUMBER PLOTS  =  20
                                        PLOT SIZE 1X1
PLANT   PLANT    TOTAL    AVE.     PERCENT   ABS.      TOTAL   AVE.     WGT./    LBS
CODE     NAME    TRANS    PER-     COMPO-    PLOT      WGT.    WGT.     UNIT     PER
                 BASAL    CENT     SITION    FREQ.     GMS/20  /PLOT    BASAL    AC.
                 AREA     BASAL              BASE      SQ.FT.  OCCUR-   AREA
                 PER-     AREA               20                RENCES
                 CENT

  5    *ARTR    226.00 1.13E+01                9
  6    *OFPC     94.50 4.72E+00                7
   PER GRASS     90.20  4.51                  13      23.40     1.80    0.26  112.36
  3    AGSM       1.10 5.50E-02 1.19E+00   4       2.48     0.62    2.25   1.1908E+01
  3    BOGR      73.30 3.65E+00 7.91E+01  13      13.90     1.07    0.19   6.6744E+01
  3    ORHY       7.20 3.60E-01 7.77E+00   8       4.52     0.56    0.63   2.1704E+01
  3    POSE       7.10 3.55E-01 7.66E+00   9       1.16     0.13    0.16   5.5700E+00
  3    SIHY       0.50 2.50E-02 5.39E-01   1       0.89     0.89    1.78   4.2735E+00
  3    STCC       1.00 5.00E-02 1.08E+00   2       0.45     0.22    0.45   2.1608E+00
   PER FORBS      0.70  0.03                   3       0.16     0.05    0.23    0.77
  2    AST        0.10 T        1.08E-01   1
  2    SPCC       0.60 3.00E-02 6.47E-01   3
   ANN FORBS      1.80  0.09                   9       0.54     0.06    0.30    2.59
  4    GIPU       0.40 2.00E-02 4.31E-01   3
  4    LECE       0.40 2.00E-02 4.31E-01   4
  4    PLPA       1.00 5.00E-02 1.08E+00   9
      TOTAL           20.66     100.00           2.4100E+01                 1.1572E+02

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

        Artr                                257.66
        Oppo                                 49.59
                   Shrub Production         307.25
                   Total Production         422.97


PRECIPITATION DATA
 RAIN GUAGE NO.         SHOSHO ANT     4       AUGUST 17/78
OCT. 15 TO APR. 15 =  1.89
APR. 15 TO JULY 1  =  5.07
JULY 1 TO SEPT. 1  =  1.03
SEPT. 1 TO OCT. 15 =   .93
SEASON TOTAL       =  8.92
LONG TERM AVERAGE  =  8.08


        No utilization
```

```
          1003   SHOSHO ANT     7       AUGUST 18/78  INSIDE NORTH

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT   PLANT     TOTAL   AVE.     PERCENT   ABS.    TOTAL   AVE.     WGT./    LBS
CODE    NAME      TRANS   PER-     COMPO-    PLOT    WGT.    WGT.     UNIT     PER
                  BASAL   CENT     SITION    FREQ.   GMS/20  /PLOT    BASAL    AC.
                  AREA    BASAL              BASE    SQ.FT.  OCCUR-   AREA
                  PER-    AREA               20              RENCES
                  CENT

  6     *ARTR    305.10 1.53E+01               15
  6     *OPPO      2.40 1.20E-01                2
  6     *PHHO      2.20 1.10E-01                3
   PER GRASS      27.50  1.37                  18       13.22    0.73   0.48   63.48
  3     AGSM       6.00 3.00E-01 2.10E+01      18        9.19    0.51   1.53   4.4128E+01
  3     BOGR      11.20 5.60E-01 3.92E+01       7        1.95    0.28   0.17   9.3633E+00
  3     ORHY       1.20 6.00E-02 4.20E+00       2        0.49    0.24   0.41   2.3528E+00
  3     POSE       9.10 4.55E-01 3.18E+01      10        1.59    0.16   0.17   7.6347E+00
   PER FORBS       0.80  0.04                   1        0.61    0.61   0.76    2.93
  2     DEGE       0.10 T        3.50E-01       1
  2     SPCO       0.70 3.50E-02 2.45E+00       1
   ANN FORBS       0.30  0.01                   2        0.16    0.08   0.53    0.77
  4     PLPA       0.30 1.50E-02 1.05E+00       2
     TOTAL             16.91    100.00              1.3990E+01               6.7176E+01

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr	207.02
Oppo	16.56
Phho	8.45
Shrub Production	232.06
Total Production	299.23

```
PRECIPITATION DATA
 RAIN GUAGE NO.          SHOSHO ANT     7       AUGUST 18/78
OCT. 15 TO APR. 15 =  1.81
APR. 15 TO JULY 1  =  4.96
JULY 1 TO SEPT. 1  =  1.24
SEPT. 1 TO OCT. 15 =   .94
SEASON TOTAL       =  8.95
LONG TERM AVERAGE  =  8.44
```

Utilization	Percent of Total Production
AGSM	42.9%

```
10 14    MAY 08  RUNL2CA...
          1003    SHOSHO ANT     7        AUGUST 18/78  INSIDE SOUTH

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT  PLANT   TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE   NAME    TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
               BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
               AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
               PER-    AREA              20              RENCES
               CENT

  6    *ARTR   202.70 1.01E+01            13
  6    *OPPO    16.50 8.25E-01             5
  6    *PHHO     4.00 2.00E-01             3
   PER GRASS    56.90  2.84               10      10.69   1.07    0.19    51.33
  3    AGSM      2.70 1.35E-01 4.66E+00   9       2.01    0.22    0.74    9.6514E+00
  3    BOGR     43.40 2.17E+00 7.48E+01  10       5.87    0.59    0.14    2.8186E+01
  3    ORHY      1.60 8.00E-02 2.76E+00   3       0.68    0.23    0.42    3.2552E+00
  3    POSE      8.20 4.10E-01 1.41E+01   9       1.77    0.20    0.22    8.4990E+00
  3    STCO      1.00 5.00E-02 1.72E+00   1       0.36    0.36    0.36    1.7286E+00
   ANN GRASS     0.10  0.00               1       0.01    0.01    0.10     0.05
  5    BRTE      0.10 T        1.72E-01   1
   PER FORBS     0.30  0.01               2       0.60    0.30    2.00     2.88
  2    DEGE      0.10 T        1.72E-01   1
  2    SPCO      0.20 1.00E-02 3.45E-01   2
   ANN FORBS     0.70  0.03               4       0.22    0.05    0.31     1.06
  4    LECE      0.10 T        1.72E-01   1
  4    PLPA      0.60 3.00E-02 1.03E+00   4
     TOTAL          14.06    100.00              1.1520E+01                5.5316E+01

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr		207.07
Oppo		16.56
Phho		8.45
	Shrub Production	232.06
	Total Production	287.37

```
PRECIPITATION DATA
 RAIN GUAGE NO.        SHOSHO ANT     7       AUGUST 18/78
OCT. 15 TO APR. 15 =  1.81
APR. 15 TO JULY 1  =  4.96
JULY 1 TO SEPT. 1  =  1.24
SEPT. 1 TO OCT. 15 =   .94
SEASON TOTAL       =  8.95
LONG TERM AVERAGE  =  8.44
```

Utilization	Percent of Total Production
AGSM	35.3%

```
09 54    MAY 08  RUNF2CA...
           1003    SHOSHO ANT     7        AUGUST 18/78  OUTSID NATIVE

                              NUMBER PLOTS = 20
                                 PLOT SIZE 1X1
PLANT  PLANT   TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE   NAME    TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
               BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
               AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
               PER-    AREA              20              RENCES
               CENT

  6    *ARTR   143.00 7.15E+00              11
  6    *OPPO    27.00 1.35E+00               7
   PER GRASS    50.10  2.50                 16     16.73    1.05   0.33   80.33
  3    AGSM      4.30 2.15E-01 8.10E+00 16      2.48    0.15   0.58   1.1908E+01
  3    BOCR     22.90 1.14E+00 4.31E+01  7      4.09    0.58   0.18   1.9639E+01
  3    CAFI      5.00 2.50E-01 9.42E+00  1      1.49    1.49   0.30   7.1545E+00
  3    ORHY      6.20 3.10E-01 1.17E+01  4      5.99    1.50   0.97   2.8762E+01
  3    POSE     11.70 5.85E-01 2.20E+01 15      2.68    0.18   0.23   1.2869E+01
   PER FORBS     0.20  0.01                  1      0.24    0.24   1.20    1.15
  2    SPCO      0.20 T        3.77E-01  1
   ANN FORBS     2.80  0.14                  8      0.80    0.10   0.29    3.84
  4    GIPU      0.20 1.00E-02 3.77E-01  2
  4    LEDE      0.40 2.00E-02 7.53E-01  4
  4    PLPA      2.10 1.05E-01 3.95E+00  8
  4    SAKA      0.10 T        1.88E-01  1
     TOTAL            11.15     100.00          1.7770E+01              8.5326E+01

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr		160.75
Oppo		23.25
Phho		2.06
	Shrub Production	186.06
	Total Production	271.29

```
PRECIPITATION DATA
 RAIN GUAGE NO.          SHOSHO ANT     7        AUGUST 18/78
OCT. 15 TO APR. 15 =  1.81
APR. 15 TO JULY 1  =  4.96
JULY 1 TO SEPT. 1  =  1.24
SEPT. 1 TO OCT. 15 =   .94
SEASON TOTAL       =  8.95
LONG TERM AVERAGE  =  8.44
```

Utilization	Percent of Total Production
AGSM	0.6%

```
          1014    SHOSHO ANY     8       AUGUST 18/78  INSIDE NORTH

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT   PLANT    TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME     TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
                 BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
                 AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
                 PER-    AREA              20              RENCES
                 CENT

  6    *ARTR    209.60 1.05E+01             11
  6    *OPPC     33.00 1.65E+00              4
   PER GRASS     41.50  2.07                16     13.13     0.82   0.32   63.05
  3     AGSM'     6.60 3.30E-01 1.52E+01 16      6.08     0.38   0.92   2.9194E+01
  3     BOGR     21.50 1.07E+00 4.95E+01  6      4.30     0.72   0.20   2.0647E+01
  3     POSE     13.00 6.50E-01 3.00E+01 15      2.68     0.18   0.21   1.2869E+01
  3     SIHY      0.40 2.00E-02 9.22E-01  1      0.07     0.07   0.17   3.3612E-01
   PER FCRBS      0.50  0.02                 3      0.36     0.12   0.72    1.73
  2     ALTE      0.10 T        2.30E-01  1
  2     SPCC      0.40 2.00E-02 9.22E-01  3
   ANN FCRBS      1.40  0.07                 6      0.74     0.12   0.53    3.55
  4     GIPU      0.10 T        2.30E-01  1
  4     LEDE      0.10 T        2.30E-01  1
  4     PLPA      1.20 6.00E-02 2.76E+00  6
     TOTAL            14.30    100.00            1.4230E+01              6.8328E+01

        * NOT COMPUTED IN PERCENT COMPOSITICN
        T - TRACE

PRODUCTICN ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

        Artr                            121.92
        Oppo                             32.05
               Shrub Production         153.97
               Total Production         222.30


PRECIPITATICN DATA
 RAIN GUAGE NO.         SHOSHO ANY     8       AUGUST 18/78
OCT. 15 TC APR. 15 =  1.75
APR. 15 TC JULY 1  =  5.29
JULY 1 TC SEPT. 1  =  1.34
SEPT. 1 TC OCT. 15 =   .96
SEASCN TCTAL       =  9.34
LONG TERM AVERAGE  =  8.18

        No utilization
```

```
         1014   SHOSHO ANT    8      AUGUST 18/78  INSIDE SOUTH

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT  PLANT   TOTAL  AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE   NAME    TRANS  PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
               BASAL  CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
               AREA   BASAL             BASE    SQ.FT.  OCCUR-  AREA
               PER-   AREA              20              RENCES
               CENT

 6   *ARTR    80.50 4.02E+00             5
 6   *OPPO     6.50 3.25E-01             2
  PER GRASS   58.80  2.94               14     22.31    1.59   0.38 107.13
 3    AGSM     3.00 1.50E-01 5.02E+00  8      4.76    0.59   1.59  2.2856E+01
 3    BOGR    25.50 1.27E+00 4.26E+01  9      3.35    0.37   0.13  1.6086E+01
 3    ORHY     8.90 4.45E-01 1.49E+01  8      5.52    0.69   0.62  2.6505E+01
 3    POSE    15.20 7.60E-01 2.54E+01 14      3.18    0.23   0.21  1.5269E+01
 3    STCO     6.20 3.10E-01 1.04E+01  4      5.50    1.37   0.89  2.6409E+01
  ANN FORBS    1.00  0.05                4      1.13    0.28   1.13    5.43
 4    CRFE     0.20 1.00E-02 3.34E-01  2
 4    GIFJ     0.10 T        1.67E-01  1
 4    PLPA     0.70 3.50E-02 1.17E+00  4
    TOTAL            7.34    100.00          2.3440E+01              1.1255E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr		121.92
Oppo		32.05
	Shrub Production	153.97
	Total Production	266.52

```
PRECIPITATION DATA
 RAIN GUAGE NO.       SHOSHO ANT    8       AUGUST 18/78
OCT. 15 TO APR. 15 =   1.75
APR. 15 TO JULY 1  =   5.29
JULY 1 TO SEPT. 1  =   1.34
SEPT. 1 TO OCT. 15 =    .96
SEASON TOTAL       =   9.34
LONG TERM AVERAGE  =   8.18
```

Utilization	Percent of Total Production
AGSM	15%
ORHY	4%

```
09 58    MAY 08  RUNJ2CA...
         1014    SHOSHO ANT     8       AUGUST 18/78  OUTSID NATIVE

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT   ABS.     TOTAL   AVE.     WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-    PLOT     WGT.    WGT.     UNIT    PER
                BASAL   CENT    SITION    FREQ.    GMS/20  /PLOT    BASAL   AC.
                AREA    BASAL             BASE     SQ.FT.  OCCUR-   AREA
                PER-    AREA              20               RENCES
                CENT

 6    *ARTR    254.40 1.27E+01             10
 6    *OPPO      1.50 7.50E-02              1
 6    *PHHO      1.50 7.50E-02              2
  PER GRASS     33.20  1.66                19      30.25     1.59    0.91  145.25
 3    AGSM      10.60 5.30E-01 3.00E+01 19      19.39     1.02    1.83   9.3105E+01
 3    BOGR       5.50 2.75E-01 1.56E+01  9       3.11     0.35    0.57   1.4933E+01
 3    ORHY       4.60 2.30E-01 1.30E+01  7       4.56     0.65    0.99   2.1896E+01
 3    POSE      11.70 5.85E-01 3.31E+01 14       2.97     0.21    0.25   1.4261E+01
 3    STCO       0.80 4.00E-02 2.27E+00  1       0.22     0.22    0.27   1.0564E+00
  PER FORBS      0.30  0.01                 2       0.20     0.10    0.67    0.96
 2    SPCO       0.30 1.50E-02 8.50E-01  2
  ANN GRASS      0.20  0.01                 1       0.02     0.02    0.10    0.10
 5    VUCC       0.20 T        5.67E-01  1
  ANN FORBS      1.60  0.08                 8       1.30     0.16    0.81    6.24
 4    GIPU       0.10 T        2.83E-01  1
 4    LECE       0.10 T        2.83E-01  1
 4    PLPA       1.40 7.00E-02 3.97E+00  8
     TOTAL            14.63    100.00          3.1770E+01                1.5255E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr		191.33
Oppo		23.23
	Shrub Production	214.56
	Total Production	367.11

```
PRECIPITATION DATA
 RAIN GUAGE NO.         SHOSHO ANT     8      AUGUST 18/78
OCT. 15 TO APR. 15 =  1.75
APR. 15 TO JULY 1  =  5.29
JULY 1 TO SEPT. 1  =  1.34
SEPT. 1 TO OCT. 15 =   .96
SEASON TOTAL       =  9.34
LONG TERM AVERAGE  =  8.18
```

Utilization	Percent of Total Production
AGSM	27.4%
ORHY	29.2%

```
          1015   SHOSHO ANT    9      AUGUST 17/78  INSIDE NORTH

                               NUMBER PLOTS  = 20
                                 PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT  ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-   PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION   FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL            BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA             20              RENCES
                CENT

  6    *ARTR   275.90 1.38E+01             15
  6    *PHHO     3.30 1.65E-01              2
   PER GRASS    29.30  1.46                18    15.04    0.84   0.51   72.22
  3    AGSM      6.00 3.00E-01 2.01E+01 18     7.72    0.43   1.29   3.7069E+01
  3    BOGR     13.40 6.70E-01 4.50E+01  4     3.58    0.89   0.27   1.7190E+01
  3    CAEL      0.30 1.50E-02 1.01E+00  2     0.18    0.09   0.60   8.6430E-01
  3    ORHY      2.40 1.20E-01 8.05E+00  5     1.08    0.22   0.45   5.1858E+00
  3    POSE      7.20 3.60E-01 2.42E+01 11     2.48    0.23   0.34   1.1908E+01
   PER FORBS     0.40  0.02                 1     0.17    0.17   0.42    0.82
  2    ERPU      0.30 1.50E-02 1.01E+00  1
  2    SPCC      0.10 T        3.36E-01  1
   ANN FORBS     0.10  0.00                 1     0.02    0.02   0.20    0.10
  4    PLPA      0.10 T        3.36E-01  1
     TOTAL             15.45    100.00          1.5230E+01            7.3130E+01

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr		120.04
Oppo		17.76
Phho		4.00
	Shrub Production	141.80
	Total Production	214.93

```
PRECIPITATION DATA
 RAIN GUAGE NO.        SHOSHO ANT     9       AUGUST 17/78
OCT. 15 TO APR. 15 =  1.76
APR. 15 TO JULY 1  =  5.29
JULY 1 TO SEPT. 1  =  1.28
SEPT. 1 TO OCT. 15 =   .94
SEASON TOTAL       =  9.27
LONG TERM AVERAGE  =  8.31
```

Utilization	Percent of Total Production
AGSM	6.6%

```
          1015    SHOSHONI      9        AUGUST 17/78  INSIDE SOUTH

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT  PLANT    TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.     WGT./    LBS
CODE   NAME     TRANS   PER-    COMPO-    PLOT    WGT.    WGT.     UNIT     PER
                BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT    BASAL    AC.
                AREA    BASAL             BASE    SQ.FT.  OCCUR-   AREA
                PER-    AREA              20              RENCES
                CENT

  6    *ARTR    190.00 9.50E+00             13
  6    *OPPO     32.00 1.60E+00              4
  6    *PHHO      3.70 1.85E-01              5
   PER GRASS     41.20  2.06                16     14.36    0.90   0.35   68.95
  3    AGSM       7.10 3.55E-01 1.68E+01 16      7.50    0.47   1.06   3.6013E+01
  3    BOGR      22.90 1.14E+00 5.43E+01 10      4.01    0.40   0.18   1.9255E+01
  3    CAEL       2.30 1.15E-01 5.45E+00  4      0.21    0.05   0.09   1.0084E+00
  3    POSE       8.20 4.10E-01 1.94E+01 13      1.59    0.12   0.19   7.6347E+00
  3    ORHY       0.70 3.50E-02 1.66E+00  2      1.05    0.52   1.50   5.0418E+00
   PER FORBS      0.90  0.04                 6      0.52    0.09   0.58    2.50
  2    SPCO       0.90 4.50E-02 2.13E+00  6
   ANN FORBS      0.10  0.00                 1      0.01    0.01   0.10    0.05
  4    PLPA       0.10 T          2.37E-01  1
     TOTAL              13.39    100.00          1.4890E+01                7.1497E+01

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr		120.04
Oppo		17.76
Phho		4.00
	Shrub Production	141.80
	Total Production	213.30

```
PRECIPITATION DATA
 RAIN GUAGE NO.          SHOSHONI      9        AUGUST 17/78
OCT. 15 TO APR. 15 =  1.76
APR. 15 TO JULY 1  =  5.29
JULY 1 TO SEPT. 1  =  1.28
SEPT. 1 TO OCT. 15 =   .94
SEASON TOTAL       =  9.27
LONG TERM AVERAGE  =  8.31
```

Utilization	Percent of Total Production
AGSM	5.8%

```
10 01    MAY 08  RUNL2CA...
            1015   SHOSHO ANT     9       AUGUST 17/78  OUTSID NATIVE

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT  PLANT   TOTAL   AVE.    PERCENT  ABS.    TOTAL  AVE.    WGT./   LBS
CODE   NAME    TRANS   PER-    COMPO-   PLOT    WGT.   WGT.    UNIT    PER
               BASAL   CENT    SITION   FREQ.   GMS/20 /PLOT   BASAL   AC.
               AREA    BASAL            BASE    SQ.FT. OCCUR-  AREA
               PER-    AREA             20             RENCES
               CENT

  6   *ARTR   315.40 1.58E+01             16
  6   *OFPC    24.00 1.20E+00              3
  6   *PHHO     6.80 3.40E-01              3
   PER GRASS   37.30  1.86                16     13.60    0.85    0.36   65.30
  3    AGSM     2.40 1.20E-01 6.25E+00 13      3.09    0.24    1.29  1.4837E+01
  3    BOGR    16.30 8.15E-01 4.24E+01  5      4.25    0.85    0.26  2.0407E+01
  3    ORHY     2.70 1.35E-01 7.03E+00  4      1.23    0.31    0.46  5.9061E+00
  3    POSE    15.30 7.65E-01 3.98E+01 16      3.65    0.23    0.24  1.7526E+01
  3    STCO     0.60 3.00E-02 1.56E+00  1      1.38    1.38    2.30  6.6263E+00
   PER FORBS    0.40  0.02                 1      0.24    0.24    0.60   1.15
  2    ERPU     0.10 T        2.60E-01  1
  2    SPCO     0.30 1.50E-02 7.81E-01  1
   ANN FORBS    0.70  0.03                 6      0.09    0.01    0.13   0.43
  4    LECE     0.10 T        2.60E-01  1
  4    PLPA     0.60 3.00E-02 1.56E+00  6
     TOTAL          19.23     100.00          1.3930E+01              6.6888E+01

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr		131.85
Oppo		6.18
Phho		18.50
	Shrub Production	156.08
	Total Production	222.97

```
PRECIPITATION DATA
 RAIN GUAGE NO.          SHOSHO ANT     9      AUGUST 17/78
OCT. 15 TO APR. 15 =  1.76
APR. 15 TO JULY 1  =  5.29
JULY 1 TO SEPT. 1  =  1.28
SEPT. 1 TO OCT. 15 =   .94
SEASON TOTAL       =  9.27
LONG TERM AVERAGE  =  8.31
```

Utilization	Percent of Total Production
AGSM	17.2%

1015 SHOSHO ANT 11 AUGUST 18/78 INSIDE NORTH

NUMBER PLOTS = 20
PLOT SIZE 1X1

PLANT CODE	PLANT NAME	TOTAL TRANS BASAL AREA PER-CENT	AVE. PER-CENT BASAL AREA	PERCENT COMPO-SITION	ABS. PLOT FREQ. BASE 20	TOTAL WGT. GMS/20 SQ.FT.	AVE. WGT. /PLOT OCCUR-RENCES	WGT./ UNIT BASAL AREA	LBS PER AC.
6	*ARTR	173.50	8.67E+00		5				
6	*OPPO	3.00	1.50E-01		1				
PER GRASS		73.30	3.66		17	24.11	1.42	0.33	115.77
3	AGSM	6.90	3.45E-01	9.13E+00	11	6.77	0.62	0.98	3.2507E+01
3	BOGR	47.60	2.38E+00	6.30E+01	14	10.47	0.75	0.22	5.0274E+01
3	ORHY	2.70	1.35E-01	3.57E+00	3	1.90	0.63	0.70	9.1232E+00
3	POSE	16.10	8.05E-01	2.13E+01	17	4.97	0.29	0.31	2.3864E+01
PER FORBS		1.70	0.08		6	1.64	0.27	0.96	7.87
2	SPCC	1.70	8.50E-02	2.25E+00	6				
ANN FORBS		0.60	0.03		3	0.35	0.12	0.58	1.68
4	GIPU	0.10	T	1.32E-01	1				
4	LECE	0.10	T	1.32E-01	1				
4	PLPA	0.40	2.00E-02	5.29E-01	3				
TOTAL			12.60	100.00		2.6100E+01			1.2532E+02

* NOT COMPUTED IN PERCENT COMPOSITION
T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr		312.45
Oppo		13.98
	Shrub Production	326.43
	Total Production	451.75

PRECIPITATION DATA
RAIN GUAGE NO. SHOSHO ANT 11 AUGUST 18/78

OCT. 15 TO APR. 15 = 1.62
APR. 15 TO JULY 1 = 4.92
JULY 1 TO SEPT. 1 = 1.12
SEPT. 1 TO OCT. 15 = .85
SEASON TOTAL = 8.51
LONG TERM AVERAGE = 8.14

No utilization

```
         1015   SHOSHO ANT     11      AUGUST 18/78  INSIDE SOUTH

                            NUMBER PLOTS  = 20
                              PLOT SIZE 1X1
PLANT  PLANT  TOTAL  AVE.   PERCENT  ABS.   TOTAL   AVE.    WGT./  LBS
CODE   NAME   TRANS  PER-   COMPO-   PLOT   WGT.    WGT.    UNIT   PER
              BASAL  CENT   SITION   FREQ.  GMS/20  /PLOT   BASAL  AC.
              AREA   BASAL           BASE   SQ.FT.  OCCUR-  AREA
              PER-   AREA            20             RENCES
              CENT

  6   *ARTR  321.50 1.61E+01         10
  6   *OPPC   46.50 2.32E+00          4
 PER GRASS    51.30  2.56            15     16.91    1.13   0.33   81.20
  3   AGSM     4.60 2.30E-01 8.78E+00 14     6.56    0.47   1.43   3.1499E+01
  3   BOGR    32.20 1.61E+00 6.15E+01 10     5.59    0.56   0.17   2.6841E+01
  3   ORHY     0.80 4.00E-02 1.53E+00  1     0.18    0.18   0.22   8.6430E-01
  3   POSE    13.70 6.85E-01 2.61E+01 15     4.58    0.31   0.33   2.1992E+01
 PER FORBS     0.50  0.02             5     0.94    0.19   1.88    4.51
  2   SPCO     0.50 2.50E-02 9.54E-01  5
 ANN FORBS     0.60  0.03             5     0.15    0.03   0.25    0.72
  4   PLPA     0.60 3.00E-02 1.15E+00  5
    TOTAL          21.02    100.00          1.8000E+01             8.6430E+01

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr		312.45
Oppo		13.98
	Shrub Production	326.43
	Total Production	412.86

```
PRECIPITATION DATA
 RAIN GUAGE NO.         SHOSHO ANT     11      AUGUST 18/78
OCT. 15 TO APR. 15 =  1.62
APR. 15 TO JULY 1  =  4.92
JULY 1 TO SEPT. 1  =  1.12
SEPT. 1 TO OCT. 15 =   .85
SEASON TOTAL       =  8.51
LONG TERM AVERAGE  =  8.14
```

Utilization	Percent of Total Production
AGSM	4.7%

```
10 04    MAY 08   RUNG2CA...
             1017    SHOSHO ANT      11       AUGUST 18/78  OUTSID NATIVE

                                 NUMBER PLOTS = 20
                                   PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT   ABS.      TOTAL   AVE.     WGT./    LBS
CODE    NAME    TRANS   PER-    COMPO-    PLOT      WGT.    WGT.     UNIT     PER
                BASAL   CENT    SITION    FREQ.     GMS/20  /PLOT    BASAL    AC.
                AREA    BASAL             BASE      SQ.FT.  OCCUR-   AREA
                PER-    AREA              20                RENCES
                CENT

  6    *ARTR   154.00 7.70E+00             9
  6    *OPPO    34.50 1.72E+00             7
   PER GRASS    80.00  4.00               16      24.92     1.56    0.31 119.66
  3     AGSM     2.00 1.00E-01 2.40E+00    6       2.66     0.44    1.33   1.2773E+01
  3     BOGR    56.20 2.81E+00 6.73E+01   16      15.56     0.97    0.28   7.4714E+01
  3     ORHY     9.60 4.80E-01 1.15E+01    7       4.22     0.60    0.44   2.0263E+01
  3     POSE    12.20 6.10E-01 1.46E+01   14       2.48     0.18    0.20   1.1908E+01
   PER FORBS     1.10  0.05                7       2.10     0.30    1.91   10.08
  2     SPCO     1.10 5.50E-02 1.32E+00    7
   ANN FORBS     2.40  0.12                8       1.75     0.22    0.73    8.40
  4     GIFU     1.10 5.50E-02 1.32E+00    8
  4     LECE     0.10 T        1.20E-01    1
  4     PLPA     1.20 6.00E-02 1.44E+00    7
     TOTAL           13.60    100.00            2.8770E+01                 1.3814E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr		201.46
Oppo		31.49
	Shrub Production	232.95
	Total Production	371.09

```
PRECIPITATION DATA
 RAIN GUAGE NO.          SHOSHO ANT      11       AUGUST 18/78
OCT. 15 TO APR. 15 =  1.62
APR. 15 TO JULY 1  =  4.92
JULY 1 TO SEPT. 1  =  1.12
SEPT. 1 TO OCT. 15 =   .85
SEASON TOTAL       =  8.51
LONG TERM AVERAGE  =  8.14
```

No utilization

```
09 46    MAY 08  RUN A2CA...
             2009   SMILO  EXCL            JULY   12/78  INSIDE NATIVE

                                 NUMBER PLOTS = 20
                                   PLOT SIZE 1X1
PLANT   PLANT    TOTAL     AVE.     PERCENT   ABS.      TOTAL   AVE.    WGT./   LBS
CODE    NAME     TRANS     PER-     COMPO-    PLOT      WGT.    WGT.    UNIT    PER
                 BASAL     CENT     SITION    FREQ.     GMS/20  /PLOT   BASAL   AC.
                 AREA      BASAL              BASE      SQ.FT.  OCCUR-  AREA
                 PER-      AREA               20                RENCES
                 CENT

  6    *ARTR    137.00 6.85E+00               8
  6    *OPPO      8.00 4.00E-01               1
  PER GRASS      36.90  1.84                  19.     47.31     2.49    1.28  227.17
  3    AGSM       8.40 4.20E-01 2.01E+01 13          14.70     1.13    1.75   7.0585E+01
  3    BOGR       5.00 2.50E-01 1.20E+01  1           3.04     3.04    0.61   1.4597E+01
  3    POSE      11.30 5.65E-01 2.70E+01 19           3.75     0.20    0.33   1.8006E+01
  3    SIHY       6.60 3.30E-01 1.58E+01  3           9.71     3.24    1.47   4.6624E+01
  3    STCC       5.60 2.80E-01 1.34E+01  3          16.11     5.37    2.88   7.7355E+01
  PER FORBS       0.30  0.01                  2       0.26     0.13    0.87     1.25
  2    ERPU       0.30 1.50E-02 7.18E-01  2
  ANN GRASS       3.20  0.16                  8       2.05     0.26    0.64     9.84
  5    BRTE       1.40 7.00E-02 3.35E+00  5
  5    VUCC       1.80 9.00E-02 4.31E+00  8
  ANN FORBS       1.40  0.07                  9       1.36     0.15    0.97     6.53
  4    PLPA       1.40 7.00E-02 3.35E+00  9
     TOTAL             9.34     100.00            5.0980E+01                  2.4479E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr		189.41
Magr		1.06
Oppo		34.20
	Shrub Production	224.67
	Total Production	469.46

```
PRECIPITATION DATA
 RAIN GUAGE NO.          SMILO  EXCL             JULY    12/78
OCT. 15 TO APR. 15 =  2.26
APR. 15 TO JULY 1  =  7.90
JULY 1 TO SEPT. 1  =  1.36
SEPT. 1 TO OCT. 15 =  2.07
SEASON TOTAL       = 13.59
LONG TERM AVERAGE  =  9.20
```

No utilization

```
          1009   SMILO  EXCL            JULY   12/78  OUTSID NATIVE

                                  NUMBER PLOTS  = 20
                                     PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.     PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-     COMPO-    PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT     SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL              BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA               20              RENCES
                CENT

 5    *ARTR     99.50 4.97E+00              7
 5    *OPPO     10.00 5.00E-01              2
  PER GRASS     82.20  4.11                19     56.19    2.96   0.68  269.81
 3    AGSM      15.70 7.85E-01 1.74E+01 14     22.57    1.61   1.44   1.0837E+02
 3    BOGR      23.00 1.15E+00 2.54E+01  3      5.13    1.71   0.22   2.4533E+01
 3    ORHY       7.00 3.50E-01 7.74E+00  1     16.69   16.69   2.38   8.0140E+01
 3    POSE      33.10 1.65E+00 3.66E+01 19      7.58    0.40   0.23   3.6397E+01
 3    SIHY       2.60 1.30E-01 2.88E+00  5      3.90    0.78   1.50   1.8727E+01
 3    STCO       0.80 4.00E-02 8.85E-01  1      0.32    0.32   0.40   1.5365E+00
  ANN GRASS      4.20  0.21                13      4.05    0.31   0.96   19.45
 5    BRTE       0.80 4.00E-02 8.85E-01  4
 5    VUCC       3.40 1.70E-01 3.76E+00 13
  ANN FORBS      4.00  0.20                13      3.35    0.26   0.84   16.09
 4    UNK#2      0.20 1.00E-02 2.21E-01  2
 4    LECE       0.10 T        1.11E-01  1
 4    PLPA       3.70 1.85E-01 4.09E+00 13
    TOTAL              9.99    100.00         6.3590E+01              3.0534E+02

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr	147.07
Oppo	46.51
Shrub Production	193.58
Total Production	498.92

```
PRECIPITATION DATA
 RAIN GUAGE NO.        SMILO  EXCL             JULY    12/78
OCT. 15 TO APR. 15 =  2.26
APR. 15 TO JULY 1  =  7.90
JULY 1 TO SEPT. 1  =  1.36
SEPT. 1 TO OCT. 15 =  2.07
SEASON TOTAL       = 13.59
LONG TERM AVERAGE  =  9.20
```

No utilization

```
09 01    MAY 08   RUNWZCA...
           1009    SMILO  EXCL              JULY   12/78  INSIDE SPRAY

                                NUMBER PLOTS = 20
                                  PLOT SIZE 1X1
PLANT   PLANT    TOTAL   AVE.    PERCENT   ABS.    TOTAL  AVE.    WGT./   LBS
CODE    NAME     TRANS   PER-    COMPO-    PLOT    WGT.   WGT.    UNIT    PER
                 BASAL   CENT    SITION    FREQ.   GMS/20 /PLOT   BASAL   AC.
                 AREA    BASAL             BASE    SQ.FT. OCCUR-  AREA
                 PER-    AREA              20             RENCES
                 CENT

  6    *ARTR     80.00 4.00E+00                3
  6    *OPPO      0.60 3.00E-02                1
   PER GRASS     51.40  2.57                  13     65.29    5.02   1.27  313.50
  3    AGSM      13.10 6.55E-01 1.65E+01 13     33.78    2.60   2.58  1.6220E+02
  3    BOGR       3.00 1.50E-01 3.79E+00  1      0.35    0.35   0.12  1.6806E+00
  3    POSE      13.30 6.65E-01 1.68E+01 11      4.92    0.45   0.37  2.3624E+01
  3    SIHY       5.80 2.90E-01 7.32E+00  3      7.40    2.47   1.28  3.5533E+01
  3    STCC      16.20 8.10E-01 2.05E+01  5     18.84    3.77   1.16  9.0464E+01
   PER FORBS      0.10  0.00                   1      0.06    0.06   0.60    0.29
  2    SPCC       0.10 T        1.26E-01  1
   ANN GRASS     27.20  1.36                  19     73.89    3.89   2.72  354.80
  5    BRTE      24.90 1.24E+00 3.14E+01 19
  5    VUCC       2.30 1.15E-01 2.90E+00 10
   ANN FORBS      0.50  0.02                   2      0.25    0.12   0.50    1.20
  4    CHE        0.10 T        1.26E-01  1
  4    DEPI       0.10 T        1.26E-01  1
  4    PLPA       0.30 1.50E-02 3.79E-01  2
     TOTAL             7.99     100.00          1.3949E+02                6.6979E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr		62.30
Oppo		23.94
	Shrub Production	86.24
	Total Production	756.03

```
PRECIPITATION DATA
 RAIN GUAGE NO.         SMILO  EXCL              JULY   12/78
OCT. 15 TO APR. 15 =  2.26
APR. 15 TO JULY 1  =  7.90
JULY 1 TO SEPT. 1  =  1.36
SEPT. 1 TO OCT. 15 =  2.07
SEASON TOTAL       = 13.59
LONG TERM AVERAGE  =  9.20
```

No utilization

```
          1009   SMILO  EXCL          JULY   12/78  OUTSID SPRAY

                             NUMBER PLOTS = 20
                               PLOT SIZE 1X1
PLANT  PLANT   TOTAL   AVE.     PERCENT   ABS.    TOTAL   AVE.     WGT./   LBS
CODE   NAME    TRANS   PER-     COMPO-    PLOT    WGT.    WGT.     UNIT    PER
               BASAL   CENT     SITION    FREQ.   GMS/20  /PLOT    BASAL   AC.
               AREA    BASAL              BASE    SQ.FT.  OCCUR-   AREA
               PER-    AREA               20              RENCES
               CENT

 6   *ARTR     25.00  1.25E+00              1
 6   *OPPO      2.00  1.00E-01              1
  PER GRASS    51.40   2.57                17      86.33    5.08    1.68  414.53
 3    AGSM     18.60  9.30E-01  2.03E+01   17      69.46    4.09    3.73   3.3353E+02
 3    AGSP      1.60  8.00E-02  1.75E+00    2       2.22    1.11    1.39   1.0660E+01
 3    POSE     21.40  1.07E+00  2.34E+01   16       5.29    0.33    0.25   2.5401E+01
 3    SIHY      0.80  4.00E-02  8.74E-01    1       0.92    0.92    1.15   4.4176E+00
 3    STCO      9.00  4.50E-01  9.84E+00    3       8.44    2.81    0.94   4.0526E+01
  PER FORBS     0.10   0.00                 1       0.02    0.02    0.20    0.10
 2    POL       0.10  T         1.09E-01    1
  ANN GRASS    33.80   1.69                20      56.35    2.82    1.67  270.58
 5    BRTE     29.10  1.45E+00  3.18E+01   20
 5    VUOC      4.70  2.35E-01  5.14E+00   14
  ANN FORBS     6.20   0.31                 9      14.11    1.57    2.28   67.75
 4    CHE       0.10  T         1.09E-01    1
 4    DEPI      0.10  T         1.09E-01    1
 4    LARE      0.50  2.50E-02  5.46E-01    4
 4    PLPA      5.40  2.70E-01  5.90E+00    9
 4    GIFU      0.10  T         1.09E-01    1
    TOTAL              5.92    100.00             1.5681E+02               7.5295E+02

     * NOT COMPUTED IN PERCENT COMPOSITION
     T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Artr		3.89
Oppo		.61
	Shrub Production	4.50
	Total Production	757.45

```
PRECIPITATION DATA
 RAIN GUAGE NO.          SMILO  EXCL           JULY   12/78
OCT. 15 TO APR. 15 =  2.26
APR. 15 TO JULY 1  =  7.90
JULY 1 TO SEPT. 1  =  1.36
SEPT. 1 TO OCT. 15 =  2.07
SEASON TOTAL       = 13.59
LONG TERM AVERAGE  =  9.20
```

No utilization

```
09 08    MAY 08  RUN52CA...
          1005    SWEET  WATER   EXCL    AUGUST 03/78   INSIDE ARNO

                                     NUMBER PLOTS = 20
                                       PLOT SIZE 1X1
PLANT   PLANT   TOTAL    AVE.     PERCENT   ABS.    TOTAL   AVE.     WGT./   LBS
CODE    NAME    TRANS    PER-     COMPO-    PLOT    WGT.    WGT.     UNIT    PER
                BASAL    CENT     SITION    FREQ.   GMS/20  /PLOT    BASAL   AC.
                AREA     BASAL              BASE    SQ.FT.  OCCUR-   AREA
                PER-     AREA               20              RENCES
                CENT

  6    *ARNO    165.90 8.29E+00                9
  6    *CHNA     18.00 9.00E-01                1
  6    *LEPU      2.20 1.10E-01                1
  6    *PHHO     12.40 6.20E-01                8
  6    *TECA     29.00 1.45E+00                4
   PER GRASS     41.10  2.05                  14     23.64     1.69    0.58 113.51
  3    AGSM       5.90 2.95E-01 1.25E+01 14      4.08     0.29    0.69  1.9591E+01
  3    CAEL      17.60 8.80E-01 3.73E+01 10      8.14     0.81    0.46  3.9086E+01
  3    KOCR       3.00 1.50E-01 6.36E+00  5      1.34     0.27    0.45  6.4343E+00
  3    ORHY       3.00 1.50E-01 6.36E+00  3      3.50     1.17    1.17  1.6806E+01
  3    STCO      11.60 5.80E-01 2.46E+01 10      6.58     0.66    0.57  3.1595E+01
   PER FORBS      6.10  0.30                  18     20.14     1.12    3.30  96.71
  2    ASPU       0.20 T        4.24E-01  1
  2    COPA       5.90 2.95E-01 1.25E+01 18
     TOTAL             13.73     100.00          4.3780E+01                2.1022E+02

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Arfr	1.78	Chvi	2.93
Arho	6.63	Lepu	1.73
Arno	225.50	Oppo	3.18
Artr	.62	Phho	9.71
Chna	6.34	Teca	22.56
		Shrub Production	279.20
		Total Production	489.42

```
PRECIPITATION DATA
 RAIN GUAGE NO.         SWEET   WATER   EXCL    AUGUST 03/78
OCT. 15 TO APR. 15 =  1.98
APR. 15 TO JULY 1  =  3.43
JULY 1 TO SEPT. 1  =  1.26
SEPT. 1 TO OCT. 15 =   .62
SEASON TOTAL       =  7.29
LONG TERM AVERAGE  =  9.08
```

No utilization

```
           1005    SWEET  WATER   EXCL    AUGUST 03/78  OUTSID ARNO

                                   NUMBER PLOTS  = 20
                                     PLOT SIZE 1X1
PLANT   PLANT    TOTAL    AVE.     PERCENT   ABS.     TOTAL   AVE.     WGT./    LBS
CODE    NAME     TRANS    PER-     COMPO-    PLOT     WGT.    WGT.     UNIT     PER
                 BASAL    CENT     SITION    FREQ.    GMS/20  /PLOT    BASAL    AC.
                 AREA     BASAL              BASE     SQ.FT.  OCCUR-   AREA
                 PER-     AREA               20               RENCES
                 CENT

  6     *ARNO    233.70 1.17E+01             7
  6     *ARTR     78.00 3.90E+00             2
  6     *CHVI     16.20 8.10E-01             4
  6     *PEC       0.30 1.50E-02             1
  6     *TECA      6.00 3.00E-01             1
   PER GRASS      51.70  2.58                15      32.62    2.17     0.63  156.63
  3     AGSM       2.70 1.35E-01  4.91E+00   7        1.94    0.28     0.72   9.3153E+00
  3     CAEL       3.00 1.50E-01  5.45E+00   3        1.13    0.38     0.38   5.4259E+00
  3     KOCR       5.20 2.60E-01  9.45E+00   8        1.86    0.23     0.36   8.9311E+00
  3     ORHY       0.50 3.00E-02  1.09E+00   1        0.87    0.87     1.45   4.1775E+00
  3     POSE       0.80 4.00E-02  1.45E+00   2        0.50    0.25     0.62   2.4008E+00
  3     STCC      39.40 1.97E+00  7.16E+01  15       26.32    1.75     0.67   1.2638E+02
   PER FORBS       3.30  0.16                5        6.96    1.39     2.11   33.42
  2     COPA       0.60 3.00E-02  1.09E+00   3
  2     CRFL       1.30 6.50E-02  2.36E+00   1
  2     PSTE       1.40 7.00E-02  2.55E+00   5
     TOTAL              19.46     100.00             3.9580E+01                1.9005E+02

         * NOT COMPUTED  IN PERCENT  COMPOSITION
         T  - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Arno	183.98	Oppo	2.48
Artr	23.18	Phho	2.06
Chna	22.27	Sede	5.52
Chvi	9.98	Teca	5.57
Lepu	2.74		

Shrub Production 257.78
Total Production 447.83

```
PRECIPITATION DATA
 RAIN GUAGE NO.          SWEET   WATER   EXCL    AUGUST 03/78
OCT. 15 TO APR. 15 =  1.98
APR. 15 TO JULY 1  =  3.43
JULY 1 TO SEPT. 1  =  1.26
SEPT. 1 TO OCT. 15 =   .62
SEASON TOTAL       =  7.29
LONG TERM AVERAGE  =  9.08
```

No utilization

```
09 05    MAY 08   RUN1ZCA...
           1005    SWEET  WATER  EXCL   AUGUST 03/78  INSIDE ARTR

                                 NUMBER PLOTS = 20
                                   PLOT SIZE 1X1
PLANT  PLANT  TOTAL   AVE.    PERCENT  ABS.     TOTAL  AVE.    WGT./  LBS
CODE   NAME   TRANS   PER-    COMPO-   PLOT     WGT.   WGT.    UNIT   PER
              BASAL   CENT    SITION   FREQ.    GMS/20 /PLOT   BASAL  AC.
              AREA    BASAL            BASE     SQ.FT. OCCUR-  AREA
              PER-    AREA             20              RENCES
              CENT

 6    *ARNO   40.00 2.00E+00              1
 6    *ARTR   69.00 3.45E+00              4
 6    *CHVI    5.50 2.75E-01              2
 6    *LEPU   10.50 5.25E-01              3
 6    *PHHO   16.00 8.00E-01              9
 6    *TECA    3.00 1.50E-01              1
  PER GRASS   84.40  4.22                17      72.30    4.25   0.86 347.16
 3    AGSM     4.00 2.00E-01 4.63E+00  9       4.66    0.52   1.16  2.2376E+01
 3    CAEL    18.30 9.15E-01 2.12E+01  8      12.06    1.51   0.66  5.7908E+01
 3    KOCR     9.10 4.55E-01 1.05E+01 11       4.72    0.43   0.52  2.2564E+01
 3    STCO    53.00 2.65E+00 6.13E+01 17      50.86    2.99   0.96  2.4421E+02
  PER FORBS    1.90  0.09                 1       0.47    0.47   0.25    2.26
 2    ALTE     0.10 T        1.16E-01  1
 2    CRFL     1.70 8.50E-02 1.97E+00  1
 2    ERPU     0.10 T        1.16E-01  1
  ANN FORBS    0.10  0.00                 1       0.01    0.01   0.10    0.05
 4    CHE      0.10 T        1.16E-01  1
   TOTAL           11.52    100.00          7.2780E+01            3.4947E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Arfr	6.77	Chvi	26.64
Arho	3.60	Lepu	2.78
Arno	29.71	Oppo	6.04
Artr	170.45	Phho	2.50
Chna	1.54	Teca	6.62
		Shrub Production	257.33
		Total Production	606.80

```
PRECIPITATION DATA
 RAIN GUAGE NO.       SWEET  WATER  EXCL   AUGUST 03/78
OCT. 15 TO APR. 15 =  1.98
APR. 15 TO JULY 1  =  3.43
JULY 1 TO SEPT. 1  =  1.26
SEPT. 1 TO OCT. 15 =   .62
SEASON TOTAL       =  7.29
LONG TERM AVERAGE  =  9.08
```

Utilization	Percent of Total Production
CAEL	6.1%

```
09 12    MAY 08  RUN B1CA...
           1005    SWEET  WATER  EXCL   JULY   03/78  OUTSID ARTR

                                 NUMBER PLOTS = 20
                                   PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA              20              RENCES
                CENT

  6    *ARTR    105.80 5.29E+00              7
  6    *CHVI     46.00 2.30E+00              8
  6    *PHHO     10.80 5.40E-01              5
   PER GRASS    113.20   5.66               20    37.98    1.90   0.34 182.37
  3     AGSM      5.40 2.70E-01 4.76E+00 14     4.54    0.32   0.84   2.1800E+01
  3     CAEL     91.70 4.58E+00 8.08E+01 20    24.52    1.23   0.27   1.1774E+02
  3     KOCR      3.30 1.65E-01 2.91E+00  3     1.47    0.49   0.45   7.0585E+00
  3     POSE      0.70 3.50E-02 6.17E-01  2     0.14    0.07   0.20   6.7224E-01
  3     STCC     12.10 6.05E-01 1.07E+01  9     7.31    0.81   0.60   3.5100E+01
   PER FORBS      0.20   0.01                1     0.03    0.03   0.15    0.14
  2     ALTE      0.10 T          8.81E-02  1
  2     SPCC      0.10 T          8.81E-02  1
   ANN FORBS      0.10   0.00                1     0.01    0.01   0.10    0.05
  4     CHE       0.10 T          8.81E-02  1
      TOTAL            13.80    100.00          3.8020E+01              1.8256E+02

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Arno		2.69
Artr		213.17
Chvi		38.06
Oppo		2.06
Phho		22.60
	Shrub Production	278.58
	Total Production	461.14

```
PRECIPITATION DATA
 RAIN GUAGE NO.        SWEET  WATER  EXCL   JULY   03/78
OCT. 15 TO APR. 15 =  1.98
APR. 15 TO JULY 1  =  3.43
JULY 1 TO SEPT. 1  =  1.26
SEPT. 1 TO OCT. 15 =   .62
SEASON TOTAL       =  7.29
LONG TERM AVERAGE  =  9.08
```

No utilization

```
13 31   MAY 07  RUNHJCA...
          2010    TWO    MILE    HILL    JULY    12/78  INSIDE NATIVE

                           NUMBER OF PLOTS
                    COVER = 200, PRODUCTION = 20
                     PLOT SIZE 1 FT. X 10 FT.
PLANT  PLANT  TOTAL  AVE.   PERCENT   ABS.   TOTAL   AVE.    WGT./  LBS
CODE   NAME   TRANS  PER-   COMPO-    PLOT   WGT.    WGT.    UNIT   PER
              BASAL  CENT   SITION    FREQ.  GMS/    /PLOT   BASAL  AC.
              AREA   BASAL            BASE   200     OCCUR-  AREA
              PER-   AREA             200    SQ.FT.  RENCES
              CENT

  6  *ARTR       6.0  3.00E-02                2
  1  ATGA     1371.6  6.86E+00 5.82E+01104      613.22    5.90  0.45  2.9445E+02
   PER GRASS   839.1  4.20E+00               99 ******   12.73  1.50  6.0513E+02
  3  AGCR      257.4  1.29E+00 1.09E+01 46      476.04   10.35  1.85  2.2858E+02
  3  ORHY        4.5  2.25E-02 1.91E-01  3       15.82    5.27  3.52  7.5963E+00
  3  POSE      229.4  1.15E+00 9.73E+00 93       75.19    0.81  0.33  3.6104E+01
  3  SIHY      347.8  1.74E+00 1.47E+01 99      693.20    7.00  1.99  3.3285E+02
   PER FORBS    3.10   0.02                 8     5.60    0.70  1.81   2.69
  2  ALTE        1.4  T        5.94E-02  6
  2  CYMO        0.6  T        2.54E-02  4
  2  MACA        0.8  T        3.39E-02  8
  2  VIAM        0.3  T        1.27E-02  2
   ANN GRASS  103.10   0.52               167   186.00    1.11  1.80  89.31
  5  BRJA        3.7  1.85E-02 1.57E-01 20
  5  BRTE       99.4  4.97E-01 4.21E+00167
   ANN FORBS   41.60   0.21               118    84.18    0.71  2.02  40.42
  4  CAMI       20.6  1.03E-01 8.73E-01118
  4  DEPI        1.4  T        5.94E-02 14
  4  HEAN        8.5  4.25E-02 3.60E-01 35
  4  LARE       10.8  5.40E-02 4.58E-01 72
  4  LEDE        0.1  T        T         1
  4  UNK         0.2  T        T         1
     TOTAL             11.8     100.00        2.14925E+03           1.03200E+03

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

```
      Oppo                               3.35
                 Shrub Production        3.35
                 Total Production     1035.35
```

```
PRECIPITATION DATA
 RAIN GUAGE NO.         TWO    MILE    HILL    JULY    12/78
OCT. 15 TO APR. 15  =  E1.35
APR. 15 TO JULY 1   =  E4.00
JULY 1 TO SEPT. 1   =  E1.44
SEPT. 1 TO OCT. 15  =   1.01
SEASON TOTAL        =  E7.80
LONG TERM AVERAGE   =   9.50
```

No utilization

```
C9 21    MAY 08  RUNXZCA...
           2010     TWO     MILE     HILL     JULY     12/78   OUT     NATIVE

                                  NUMBER OF PLOTS
                             COVER = 200, PRODUCTION = 20
                              PLOT SIZE 1 FT. X 10 FT.
PLANT   PLANT    TOTAL   AVE.    PERCENT   ABS.     TOTAL   AVE.     WGT./   LBS
CODE    NAME     TRANS   PER-    COMPO-    PLOT     WGT.    WGT.     UNIT    PER
                 BASAL   CENT    SITION    FREQ.    GMS/    /PLOT    BASAL   AC.
                 AREA    BASAL             BASE     200     OCCUR-   AREA
                 PER-    AREA              200      SQ.FT.  RENCES
                 CENT

  1  ATGA      1189.5   5.95E+00 8.11E+01117     385.92     3.30    0.32   1.8531E+02
   PER GRASS     30.3   1.51E-01            23      13.91     0.60    0.46   6.6792E+00
  3  POSE        25.5   1.27E-01 1.74E+00 23      10.72     0.47    0.42   5.1474E+00
  3  SIHY         4.8   2.40E-02 3.27E-01  9       3.19     0.35    0.66   1.5317E+00
   PER FORBS      1.80   0.01                9       2.09     0.23    1.16    1.00
  2  ALTE         0.1   T        T          1
  2  MACA         1.6   T        1.09E-01   9
  2  POL          0.1   T        T          1
   ANN GRASS     99.60   0.50              183     356.29     1.95    3.58 171.08
  5  BRJA        79.2   3.96E-01 5.40E+00183
  5  BRTE        20.3   1.01E-01 1.38E+00103
  5  VUOC         0.1   T        T          1
   ANN FORBS    144.80   0.72              170     684.61     4.03    4.73 328.73
  4  CAME         3.9   1.95E-02 2.66E-01 30
  4  CHE          0.1   T        T          1
  4  DEPI         0.9   T        6.14E-02   8
  4  HEAN       121.9   6.09E-01 8.32E+00169
  4  LARE        17.9   8.95E-02 1.22E+00 94
  4  LEDE         0.1   T        T          1
     TOTAL               7.3      100.00         1.44282E+03              6.92798E+02

       * NOT COMPUTED IN PERCENT COMPOSITION
       T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

      Magr                           18.86
                Shrub Production     18.86
                Total Production    711.66


PRECIPITATION DATA
 RAIN GUAGE NO.        TWO    MILE    HILL    JULY    12/78
OCT. 15 TO APR. 15 =  E1.35
APR. 15 TO JULY 1  =  E4.00
JULY 1 TO SEPT. 1  =  E1.44
SEPT. 1 TO OCT. 15 =   1.01
SEASON TOTAL       =  E7.80
LONG TERM AVERAGE  =   9.50

      Utilization       Percent of Total Production
          POSE                     1.6%
          SIHY                    16.6%
          ANN GRASS                2.3%
          1006   UPPER  GOVT   DRAW   AUGUST 02/78  INSIDE NATIVE

                                      NUMBER PLOTS = 20
                                        PLOT SIZE 1X1
PLANT  PLANT    TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE   NAME     TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA              20              RENCES
                CENT

  6    *ARTR   196.60 9.83E+00             11
  6    *PHHO     7.60 3.80E-01             10
   PER GRASS    51.80  2.59                20      38.24    1.91   0.74 183.62
  3     AGSM    11.00 5.50E-01 2.10E+01 20      15.90    0.79   1.45  7.6347E+01
  3     KOCR    28.70 1.43E+00 5.49E+01 19      19.90    1.05   0.69  9.5554E+01
  3     POSE    12.10 6.05E-01 2.31E+01 15       2.44    0.16   0.20  1.1716E+01
   PER FORBS     0.50  0.02                 1       0.14    0.14   0.28   0.67
  2     SPCC     0.20 T        3.82E-01  1
  2     VIAN     0.30 1.50E-02 5.74E-01  1
     TOTAL            12.82    100.00          3.8380E+01              1.8429E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE
```

```
PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

      Artr                                 271.49
      Oppo                                   1.97
      Phho                                   6.96
                  Shrub Production         280.42
                  Total Production         464.71
```

```
PRECIPITATION DATA
 RAIN GUAGE NO.          UPPER   GOVT    DRAW    AUGUST 02/78
OCT. 15 TO APR. 15  =   E2.20
APR. 15 TO JULY 1   =    4.52
JULY 1 TO SEPT. 1   =     .57
SEPT. 1 TO OCT. 15  =    1.20
SEASON TOTAL        =   E8.79
LONG TERM AVERAGE   =    9.26
```

No utilization

```
          1006    UPPER  GOVT    DRAW    AUGUST 02/78  OUTSID NATIVE

                                  NUMBER PLOTS = 20
                                    PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT   ABS.    TOTAL   AVE.    WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-    PLOT    WGT.    WGT.    UNIT    PER
                BASAL   CENT    SITION    FREQ.   GMS/20  /PLOT   BASAL   AC.
                AREA    BASAL             BASE    SQ.FT.  OCCUR-  AREA
                PER-    AREA              20              RENCES
                CENT

  6    *ARTR    270.00 1.35E+01            12
  6    *LEPU      1.00 5.00E-02             1
  6    *OPPO     10.00 5.00E-01             1
  6    *PHHO     20.50 1.02E+00            13
   PER GRASS     54.30  2.71               20     28.36     1.42    0.52  136.18
  3     AGSM     15.00 7.50E-01 2.67E+01   20     17.22     0.86    1.15   8.2685E+01
  3     KOCR     15.00 7.50E-01 2.67E+01   13      4.49     0.35    0.30   2.1560E+01
  3     POSE     24.30 1.21E+00 4.33E+01   20      6.65     0.33    0.27   3.1931E+01
   PER FORBS      1.60  0.08                6      0.83     0.14    0.52    3.99
  2     CRAC      0.30 1.50E-02 5.35E-01    1
  2     MACA      0.10 T        1.78E-01    1
  2     SPCO      1.20 6.00E-02 2.14E+00    6
   ANN FORBS      0.20  0.01                2      0.00     0.00    0.00    0.00
  4     PLPA      0.20 1.00E-02 3.57E-01    2
     TOTAL            17.83    100.00            2.9190E+01                1.4016E+02

        * NOT COMPUTED IN PERCENT COMPOSITION
        T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr		136.27
Chvi		.48
Oppo		3.24
Phho		12.53
	Shrub Production	152.52
	Total Production	292.68

```
PRECIPITATION DATA
 RAIN GUAGE NO.          UPPER   GOVT    DRAW    AUGUST 02/78
OCT. 15 TO APR. 15 =    E2.20
APR. 15 TO JULY 1  =     4.52
JULY 1 TO SEPT. 1  =      .57
SEPT. 1 TO OCT. 15 =     1.20
SEASON TOTAL       =    E8.79
LONG TERM AVERAGE  =     9.26
```

Utilization	Percent of Total Production
AGSM	2.1%
POSE	1.5%

```
09 21    MAY 08  RUNLICA...
          1006   UPPER  GOVT   DRAW   AUGUST 02/78  INSIDE SPRAY

                             NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT   PLANT   TOTAL   AVE.    PERCENT  ABS.    TOTAL   AVE.     WGT./   LBS
CODE    NAME    TRANS   PER-    COMPO-   PLOT    WGT.    WGT.     UNIT    PER
                BASAL   CENT    SITION   FREQ.   GMS/20  /PLOT    BASAL   AC.
                AREA    BASAL            BASE    SQ.FT.  OCCUR-   AREA
                PER-    AREA             20              RENCES
                CENT

  5   *ARTR     0.10 T                    1
  5   *OPPO    21.00 1.05E+00             2
  PER GRASS    88.80  4.44               18     141.12     7.84   1.59 677.51
  3    AGCR     2.60 1.30E-01 2.91E+00  2       6.70     3.35   2.58  3.2171E+01
  3    AGSM    23.50 1.17E+00 2.63E+01 18      61.53     3.42   2.62  2.9545E+02
  3    KOCR    51.10 2.55E+00 5.72E+01 18      68.93     3.83   1.35  3.3098E+02
  3    POSE     9.90 4.95E-01 1.11E+01 12       2.00     0.17   0.20  9.6034E+00
  3    STCC     1.70 8.50E-02 1.90E+00  1       1.96     1.96   1.15  9.4113E+00
  PER FORBS     0.20  0.01                1       0.05     0.05   0.25   0.24
  2    ERPU     0.20 T        2.24E-01  1
  ANN GRASS     0.40  0.02                2       0.02     0.01   0.05   0.10
  5    BRTE     0.40 2.00E-02 4.47E-01  2
     TOTAL           5.52     100.00         1.4119E+02                6.7795E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

      Artr                                   37.06
      Oppo                                    7.71
      Phho                                    1.57
                  Shrub Production           46.74
                  Total Production          724.69

PRECIPITATION DATA
 RAIN GUAGE NO.       UPPER  GOVT   DRAW   AUGUST 02/78
OCT. 15 TO APR. 15 =  E2.20
APR. 15 TO JULY 1  =   4.52
JULY 1 TO SEPT. 1  =    .57
SEPT. 1 TO OCT. 15 =   1.20
SEASON TOTAL       =  E8.79
LONG TERM AVERAGE  =   9.26
```

No utilization

```
        1006   UPPER  GOVT   DRAW   AUGUST 02/78  OUTSID SPRAY

                              NUMBER PLOTS = 20
                                PLOT SIZE 1X1
PLANT  PLANT  TOTAL   AVE.    PERCENT  ABS.    TOTAL   AVE.    WGT./   LBS
CODE   NAME   TRANS   PER-    COMPO-   PLOT    WGT.    WGT.    UNIT    PER
              BASAL   CENT    SITION   FREQ.   GMS/20  /PLOT   BASAL   AC.
              AREA    BASAL            BASE    SQ.FT.  OCCUR-  AREA
              PER-    AREA             20              RENCES
              CENT

 6   *ARTR    309.90 1.55E+01             17
 6   *PHHO      1.90 9.50E-02              3
  PER GRASS    60.00  3.00                20     29.56    1.48   0.49 141.94
 3   AGSM      16.90 8.45E-01 2.77E+01 20     17.47    0.87   1.03  8.3886E+01
 3   KOCR      16.10 8.05E-01 2.64E+01 11      5.16    0.47   0.32  2.4777E+01
 3   POSE      17.10 8.55E-01 2.80E+01 14      3.54    0.25   0.21  1.6998E+01
 3   STCO       9.90 4.95E-01 1.62E+01  7      3.39    0.48   0.34  1.6278E+01
  PER FORBS     0.80  0.04                 3      0.38    0.13   0.47    1.82
 2   MACA       0.30 1.50E-02 4.92E-01  1
 2   SPCO       0.50 2.50E-02 8.20E-01  3
  ANN FORBS     0.20  0.01                 2      0.02    0.01   0.10    0.10
 4   PLPA       0.20 1.00E-02 3.28E-01  2
    TOTAL            18.64    100.00          2.9960E+01             1.4386E+02

      * NOT COMPUTED IN PERCENT COMPOSITION
      T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Artr		98.50
Phho		9.50
	Shrub Production	108.00
	Total Production	251.86

```
PRECIPITATION DATA
 RAIN GUAGE NO.        UPPER  GOVT   DRAW   AUGUST 02/78
OCT. 15 TO APR. 15 =  E2.20
APR. 15 TO JULY 1  =   4.52
JULY 1 TO SEPT. 1  =    .57
SEPT. 1 TO OCT. 15 =   1.20
SEASON TOTAL       =  E8.79
LONG TERM AVERAGE  =   9.26
```

Utilization	Percent of Total Production
KOCR	5.4%

```
            2006    WEST    PASTUR EXCL    JULY    25/78  INSIDE NATIVE

                               NUMBER OF PLOTS
                      COVER = 200, PRODUCTION = 20
                        PLOT SIZE 1 FT. X 10 FT.
PLANT   PLANT   TOTAL   AVE.     PERCENT   ABS.    TOTAL    AVE.     WGT./    LBS
CODE    NAME    TRANS   PER-     COMPO-    PLOT    WGT.     WGT.     UNIT     PER
                BASAL   CENT     SITION    FREQ.   GMS/     /PLOT    BASAL    AC.
                AREA    BASAL              BASE    200      OCCUR-   AREA
                PER-    AREA               200     SQ.FT.   RENCES
                CENT

  6   *ARSP     981.5  4.91E+00              122
  6   *OPPO     126.9  6.34E-01               25
  1   ATGA      964.3  4.82E+00 8.86E+01108    242.98    2.25    0.25   1.1667E+02
   PER GRASS     86.8  4.34E-01               74     85.22    1.15    0.98   4.0920E+01
  3   BOGR        0.1  T        T              1      0.07    0.07    0.70   3.3612E-02
  3   ORHY       42.5  2.12E-01 3.91E+00 74          40.93    0.55    0.96   1.9653E+01
  3   POSE       15.8  7.90E-02 1.45E+00 21           2.94    0.14    0.19   1.4117E+00
  3   SIHY       22.8  1.14E-01 2.10E+00 44          38.15    0.87    1.67   1.8318E+01
  3   SPAI        5.6  2.80E-02 5.15E-01 14           3.13    0.22    0.56   1.5029E+00
   PER FORBS    26.70   0.13                  52     29.80    0.57    1.12   14.31
  2   ALTE        2.3  1.15E-02 2.11E-01 19
  2   AST         0.4  T        3.68E-02  2
  2   MACA        0.6  T        5.51E-02  6
  2   MUDI       23.4  1.17E-01 2.15E+00 52
   ANN FORBS    10.30   0.05                  28      7.33    0.26    0.71    3.52
  4   CHE         0.1  T        T              1
  4   GIPU        0.3  T        2.76E-02  3
  4   LARE        3.5  1.75E-02 3.22E-01 28
  4   LFDE        0.5  T        4.60E-02  5
  4   MATA        2.5  1.25E-02 2.30E-01 22
  4   PLPA        2.9  1.45E-02 2.67E-01 16
  4   POAV        0.5  T        4.60E-02  5
      TOTAL            11.0     100.00          3.65330E+02              1.75420E+02

     * NOT COMPUTED IN PERCENT COMPOSITION
     T - TRACE

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS
```

Arpe		.10
Arsp		14.50
Oppo		38.22
	Shrub Production	52.82
	Total Production	228.24

```
PRECIPITATION DATA
 RAIN GUAGE NO.          WEST    PASTUR EXCL    JULY    25/78
OCT. 15 TO APR. 15 =   .79
APR. 15 TO JULY 1  =  5.33
JULY 1 TO SEPT. 1  =  1.36
SEPT. 1 TO OCT. 15 =   .07
SEASON TOTAL       =  8.45
LONG TERM AVERAGE  =  5.71
```

No utilization

```
        2006    WEST    PASTUR EXCL    JULY    25/78  OUT      NATIVE

                            NUMBER OF PLOTS
                      COVER = 200, PRODUCTION = 20
                        PLOT SIZE 1 FT. X 10 FT.
 PLANT   PLANT   TOTAL   AVE.    PERCENT  ABS.     TOTAL   AVE.    WGT./   LBS
 CODE    NAME    TRANS   PER-    COMPO-   PLOT     WGT.    WGT.    UNIT    PER
                 BASAL   CENT    SITION   FREQ.    GMS/    /PLOT   BASAL   AC.
                 AREA    BASAL            BASE     200     OCCUR-  AREA
                 PER-    AREA             200      SQ.FT.  RENCES
                 CENT

  6   *ARPE       6.0  3.00E-02                2
  6   *ARSP     705.6  3.53E+00              141
  6   OPPO      166.3  8.31E-01               37
  1   ATGA      797.2  3.99E+00 8.46E+01118       327.15     2.77    0.41   1.5709E+02
   PER GRASS     94.7  4.73E-01               59   54.08     0.92    0.57   2.5968E+01
  3   BOGR        8.8  4.40E-02 9.34E-01   3        2.27     0.76    0.26   1.0900E+00
  3   ORHY       27.0  1.35E-01 2.87E+00  59       22.23     0.38    0.82   1.0674E+01
  3   POSE       11.1  5.55E-02 1.18E+00  20        2.09     0.10    0.19   1.0036E+00
  3   SIHY        5.7  2.85E-02 6.05E-01  15        6.25     0.42    1.10   3.0011E+00
  3   SPAI       42.1  2.10E-01 4.47E+00  58       21.24     0.37    0.50   1.0199E+01
   PER FORBS      3.70  0.02                   7   27.40     3.91    7.41   13.16
  2   ALTE        0.5  T        5.31E-02   4
  2   AST         0.1  T        1.06E-02   1
  2   MUDI        3.1  1.55E-02 3.29E-01   7
   ANN FORBS     46.20  0.23                 108   23.96     0.22    0.52   11.50
  4   CHE         0.1  T        1.06E-02   1
  4   GIPU        6.0  3.00E-02 6.37E-01  36
  4   LARE        4.2  2.10E-02 4.46E-01  28
  4   LEDE        0.3  T        3.19E-02   3
  4   MATA       26.4  1.32E-01 2.80E+00108
  4   PLPA        9.1  4.55E-02 9.66E-01  57
  4   POAV        0.1  T        1.06E-02   1
      TOTAL            9.1      100.00       4.32590E+02                2.07716E+02

        * NOT COMPUTED IN PERCENT COMPOSITION
        T - TRACE
```

PRODUCTION ESTIMATES OF SHRUBS AND WOODY MAT FORM PLANTS

Arpe	1.68
Arsp	24.48
Oppo	57.53
Shrub Production	83.69
Total Production	291.40

```
PRECIPITATION DATA
 RAIN GUAGE NO.           WEST    PASTUR EXCL    JULY    25/78
OCT. 15 TO APR. 15 =       .79
APR. 15 TO JULY 1  =      5.33
JULY 1 TO SEPT. 1  =      1.36
SEPT. 1 TO OCT. 15 =       .07
SEASON TOTAL       =      8.45
LONG TERM AVERAGE  =      5.71
```

Utilization	Percent of Total Production
ORHY	3.1%

ER'S CARD

OFFICE	DATE RETURNED

(Continued on reverse)

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